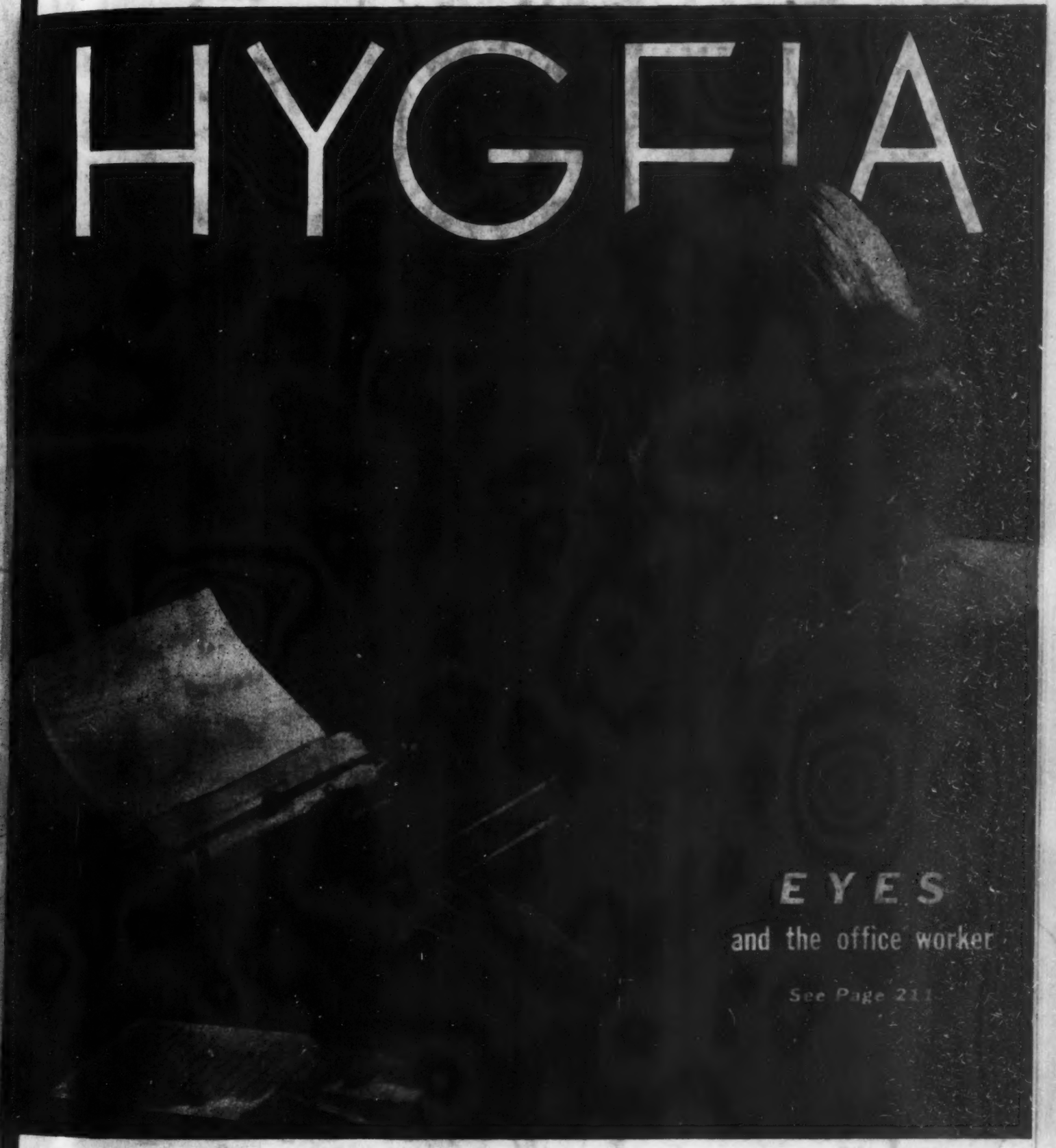
FEB 23 1938

THE HEALTH MAGAZINE

HYGEIA



EYES
and the office worker

See Page 211

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HOW TO BLOW YOUR NOSE • • LEPROSY

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AN AMERICAN MEDICAL ASSOCIATION PUBLICATION

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MARCH 1938 Vol. 16 No. 3

HYGEIA

THE HEALTH MAGAZINE

Published and copyrighted, 1938, by the American Medical Association. Edited by Morris Fishbein, M.D.

PRESENTING

CLARK M. GARBER, feature writer and lecturer on Eskimo life. Mr. Garber, who was formerly Superintendent of Eskimo Education, Medical Relief and Reindeer in Alaska for the U. S. Bureau of Education, advocates an educational program of health and hygiene which will allow the Eskimo to be an Eskimo and will prevent his otherwise inevitable extinction.

DUDLEY B. REED, M.D., director of student health service and professor of hygiene, School of Medicine, University of Chicago, who combines an exhilarating philosophy of life with a keen interest in sports, athletics, health and human beings.

EMMA R. SMITH, editor for The Child Conservation League of America, who tells puzzled parents how to answer their children's questions clearly, competently and coherently.

GEORGE A. SKINNER, M.D., colonel (U. S. Army Medical Corps, retired) and professor of public health, University of Nebraska Medical College. Dr. Skinner has been a frequent contributor to HYGEIA, his most recent contribution being a series on "Nature's G-Men," which appeared in 1937.

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And a little child did lead them

THE DEXTERS, like many young couples, were pretty much letting their health take care of itself.

Since setting up housekeeping, they had drifted along without a doctor, trusting to youthful stamina to see them through.

Then along came their son and heir. And the Dexters can thank that chubby youngster for leading them to better health.

Naturally, with a baby in the home, they often needed the doctor's advice. The help he gave convinced them that a doctor should have a regular place in their family life—that medical knowledge was something they should take advantage of for themselves as well as for their baby. As a result, both parents have benefited.

For instance, Mrs. Dexter suffered from headaches which she attributed to "indigestion." The doctor found that they were really caused by eyestrain and took steps to correct it.

Mr. Dexter, worried about a general feeling of listlessness, dropped in on the doctor one evening. The doctor found that the diet Mr. Dexter had read about somewhere, and was following "to keep his waist down," was also driving down his vitality—his disease-resistance. Undernourished, Mr. Dexter was headed for trouble. The doctor gave him a diet that took those pounds off *safely*, yet quickly restored vitality to normal.

And so a doctor is now part of the Dexter family circle—and is there to stay. Thanks to him, the Dexters are well prepared to cope with any health hazards this unpredictable world might have in store for them.

* * *

It is not good sense to "drift along" so far as health is concerned. It is intelligent living and sound business to have a family doctor and consult him freely.

PARKE, DAVIS & COMPANY, Detroit, Mich.

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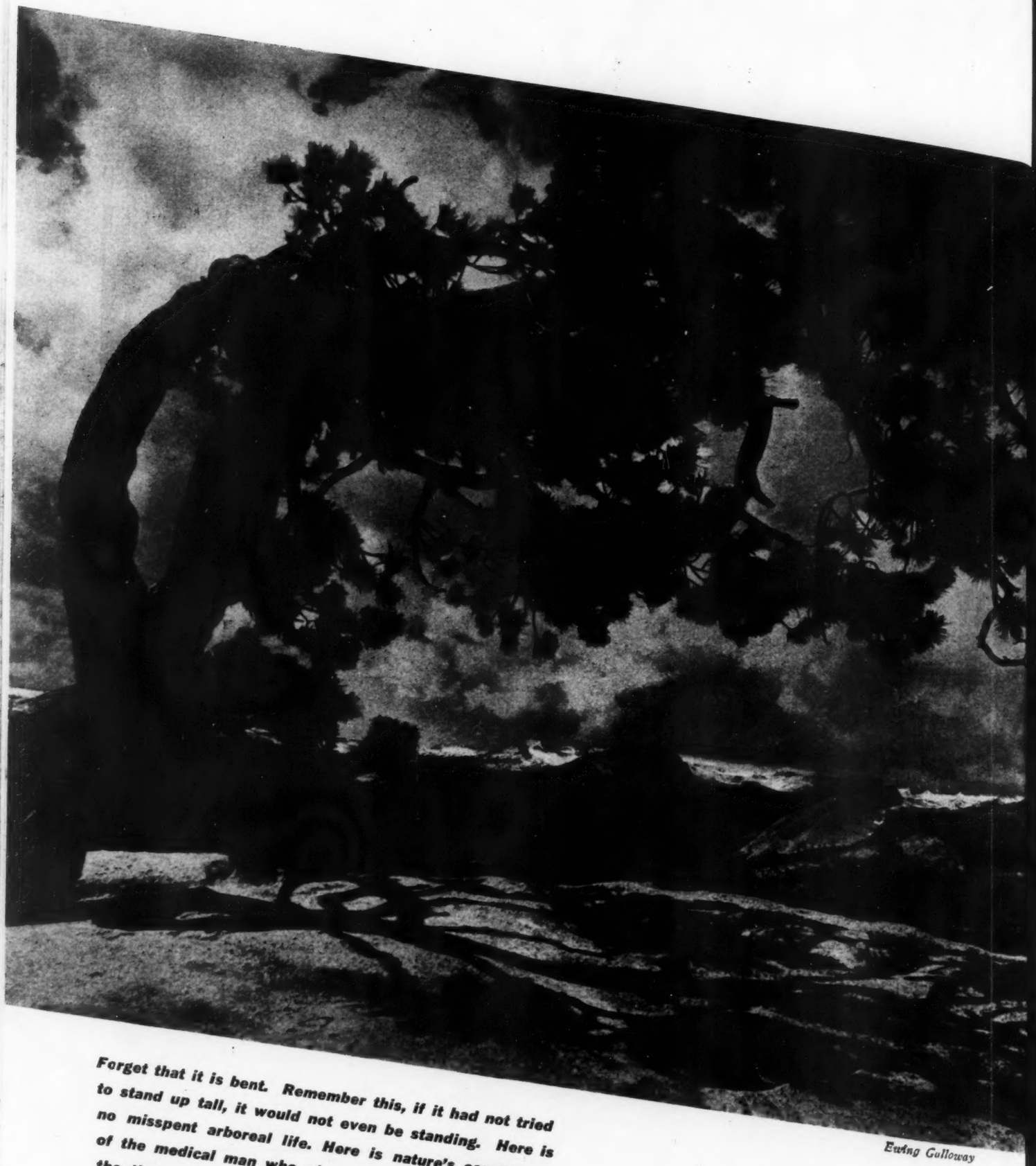
SEE YOUR DOCTOR



Ewing Galloway

Forget that it is bent. Remember this, if it had not tried to stand up tall, it would not even be standing. Here is no misspent arboreal life. Here is nature's counterpart of the medical man who plants himself on the frontier, the timberline, of progress and stands and grows amid the battering winds of ignorance and circumstance.

—PHELPS JOHNSTON

Medical
Wilson
3-12-40

EDITORIAL

SYPHILIS

By Morris Fishbein

THROUGH YEARS of research the medical profession has learned the cause of syphilis, the ways in which it is spread from one human being to another, how to diagnose it early and certainly, how to prevent it and how to treat it and to cure it. Yet the disease still prevails among us to an extraordinary degree. Estimates indicate there may be anywhere from 300,000 to 500,000 new cases in the United States each year, and it is asserted that anywhere from 7 to 10 per cent of our people have this disease. With the knowledge that is available we ought to be able to stamp it out entirely. Whether or not this result will be accomplished depends on the extent to which intelligent human beings will cooperate with their doctors and with their health departments in this campaign.

Since Surgeon General Thomas Parran led in breaking down the nation-wide tabu against the word and since he convinced Americans that nice people do talk about syphilis, nice people may have syphilis and nice people must do something about syphilis, the subject has been discussed before men's and women's clubs, before audiences in colleges and in high schools and over radio stations and networks. City-wide open forums are being devoted to bringing the control of venereal diseases prominently before all the people in many communities.

SYPHILIS—A SOCIAL DISEASE

Of all the diseases that are called social diseases, syphilis most truly merits the name. There are other diseases that are caused either wholly or in part by poverty, by malnutrition, by bad housing, by contaminated water and food and by improper disposal of sewage; but the venereal diseases are specifically conditions transmitted in the most intimate of all human relationships and not frequently in other ways. There are, of course, records of infection with syphilis by accident, for instance when a person with a sore on his finger has come in contact with infected material from the body of another person; there are records of infection from kissing, and babies have been infected from nurses. These secondary types of infection are, however, so unusual in comparison with the usual method of the spread of this infection that nobody needs to worry constantly about the danger of being infected. Hotel beds, public lavatories, bathtubs, door knobs, books and dishes in restaurants are not easily infected. Yet the disease is widespread. It affects every rank of society—the rich and the poor, the old and the young, the black and the white, people of every race and of every creed. It affects men and women and even the unborn child. It stands like a specter at the wedding feast when the marriage ceremony has not been protected by examinations made previous to marriage. It stands with the hosts of death to welcome many a human being long before his time. It pervades the dormitories of institutions for the insane. It hovers over great disasters on land, at sea or in the air when a human being infected with syphilis has failed in the task of protecting those whose lives have been entrusted to him on a train, a ship or an airplane. Certainly it is time that the people in every community took this matter seriously in hand.

SYPHILIS—A YOUTH DISEASE

Since the great campaign against the venereal diseases was opened to the public, we have been deluged with facts and figures as to the incidence of the two main venereal diseases. It is now generally well known that 3 per cent of cases of syphilis are acquired before those infected are 15 years of age; 24 per cent between the ages of 15 and 20, and 51 per cent between the ages of 20 and 30. That means that 78 per cent of all syphilis is acquired before 30 years of age, placing it unquestionably in the forefront as the enemy of youth.

Somehow people have the impression that syphilis is primarily a disease of men; yet the number of women, of girls and of children infected (and for them in most cases truly innocently infected) is tremendous.

Three out of every hundred babies born in the United States have syphilis which they acquired in the period before they were born. Out of all the babies who die before they are 1 year old, 40 per cent die before they reach the age of 1 month, with syphilis outstanding as the cause of such early deaths.

THE COST OF SYPHILIS

From the point of view of economics, syphilis is among the most costly of all diseases not only to the person who has it but also to the nation that tolerates it. Infected men lose at least 21 million working days every year. Allowing for this loss at the rate of $4 a day, the immediate loss equals $84,000,000. It has been estimated that the annual bill for the treatment of syphilis in New York State is more than $23,000,000.

Our expenditure for people blind as the result of syphilis has been estimated at $10,000,000 a year. Yet the nation hesitates when asked to spend the comparatively small sums of money that might be necessary to stamp out syphilis completely!

THE INCIDENCE OF SYPHILIS

Sixty thousand children every year are born in the United States with congenital syphilis. Ten per cent of the people who are in our hospitals for the insane are there because of general paresis, and this is invariably due to syphilis. Syphilis is particularly vicious when it attacks the blood vessels. One hundred and sixty thousand people at all times have syphilis affecting the heart and the blood vessels, and 40,000 die every year from this cause.

People who like epigrams say that unless something is done and done soon, we will become a "syphilized" nation instead of a civilized nation.

It must be realized that various parts of the country differ in their incidence of this disease. Among 30,000 rural southern Negroes, 20 per cent had positive Wassermann tests. Out of 1 million industrial employees examined in the northern part of the country, slightly less than 5 per cent had positive Wassermann tests. The disease appears among Negroes six times as often as among the white population. Whereas the infection among criminals in penitentiaries indicates an incidence of from 30 to 40 per cent, the amount of infection among men of better families may vary from 2 to 7 per cent. In some of our large universities less than 1 per cent of the students have been found to be infected.

THE CONTROL OF SYPHILIS

Some foreign nations have proved that syphilis can be controlled. In the United States we have 796 cases of syphilis for every 100,000 people each year in contrast to 20 for Denmark and 7 for Sweden. The curve of the incidence of syphilis in Sweden has dropped steadily from a high point of 5,976 new cases in 1919 to 356 new cases in 1936. What more proof is needed that syphilis can be controlled? We have all the knowledge necessary for the purpose. Let us see where we have failed.

In Sweden a law was enacted in 1918 which essentially handles the venereal diseases as a police problem. For every patient with syphilis the medical and legal authorities trace the source of infection, with penalties for doctors and patients and those who have contact with the patients in case they fail to comply with the requirement of repeated examination and treatment.

AN AMERICAN PLAN FOR SYPHILIS

It should be possible in this country to develop an American plan for the control of these diseases which will operate at least as efficiently as the plans in Denmark and Sweden, if not more so. We need, first of all, the recognition of the fact that syphilis is a disease and not a sin. When those who are infected feel the obligation to consult medical advice as early as possible, when opportunity is afforded for early consultation with the physician and when the economic situation is so adjusted that funds will be available for the provision of the necessary drugs in adequate amounts for those who require them, our rate for syphilis will fall with the same rapidity and in the same manner as did the rates for other infectious diseases.

Our people must learn that a Wassermann test for every pregnant woman is a necessity. Those about to be married must be compelled by law, if not by public opinion, to prove their freedom from syphilis and gonorrhea. Gradually more and more states have recognized the importance of such examinations. Already Connecticut, Illinois, Michigan, New Hampshire, Oregon and Wisconsin have such laws, and laws are pending in Kentucky, Virginia, Mississippi, Massachusetts, New York, Rhode Island, South Carolina and New Jersey. In Alabama, Louisiana, North Dakota and Wyoming it is necessary for the prospective bridegroom to furnish a certificate showing that he is free from venereal diseases.

Life insurance companies which help to bear the burden of payment for this disease may well demand a Wassermann test in the medical examination of those who wish to purchase life or sickness insurance.

The congress and the legislatures of the individual states have recognized the nature of the syphilis problem, and there is more money now available for use in its control than ever before in the nation's history. With an aroused public consciousness the beginnings of our control of the venereal diseases should soon become apparent.

Keystone View Co.

By **SOLOMON MALIS**

AN UNUSUAL QUESTION is this, to which surprisingly few persons have ever given a thought, and fewer can give an intelligent answer. The attitude of most people is, why bother about such a simple everyday act? Few realize the serious results of an improper way of blowing the nose.

Many, no doubt, have experienced a sharp pain in one or both ears after violently blowing the nose. Often after swimming and diving one experiences pain in the ears. It may be the beginning of those conditions we have all heard so much of: abscesses of the ears, mastoiditis and sinus troubles. Even though we escape these serious diseases, damage is invariably done to the delicate

H. Armstrong Roberts

THE FUNCTIONING OF THE NOSE MAY BE IMPAIRED WHILE SWIMMING.

hearing apparatus. The mere pushing out of the eardrums beyond their normal limits, by the violent blowing of the nose, reduces their tension, causing them to become lax and weak, with consequent impaired hearing.

For better understanding of the parts referred to, a brief and simple consideration of their anatomy and physiology will be helpful. At the back part of the nose canal, on each side, are the openings of the eustachian tubes, which lead to the middle ear. In the adult the tube has an oblique upward course, being about 1½ inches long and about 1/12 inch in diameter. These tubes are normally collapsed, the nasal ends opening only when one swallows, yawns or raises the palate. In children the tubes are shorter, wider and less tilted, thereby offering greater accessibility to germs. Such infection is usually facilitated when the child coughs or blows his nose incorrectly. The function of the tube is to allow air to enter the space inside the ear drums, thus equalizing the air pressure. Sudden ascent or descent from considerable heights results in a change of air pressure which may cause a ringing in the ears, pain or an impairment of hearing. For this reason airplane pilots are more subject to disturbances of the middle ear than to all other occupational diseases combined. Similarly, airplane passengers are even more susceptible.

The eustachian tube opens into a tiny space, termed the middle ear, a space 1/3 inch in length and height, but only 1/16 inch in width. It is shut off from the outside by a fine thin elastic membrane, the drum. Into this little space are crowded three separate bones, the ossicles; here also are muscles, ligaments and nerves, and enough space is left for the mobility of the drum to allow the latter to vibrate and conduct sound to the higher centers of the brain. It is easy to imagine how quickly this apparatus may become out of order when a drop of water, or still worse a drop of pus, is lodged into this tiny space.

With the advent of civilization and hygiene we have acquired the use of the handkerchief to catch the secretions expelled from the nose. The history of the kerchief's origin is interesting. In China before the Christian era a piece of silk tissue was used by the upper classes. Kerchiefs were also in use during the sixteenth century in the reign of the English king Henry VIII. One made for his daughter Elizabeth consisted of Venetian silk elaborately trimmed with gold and silver fringe. "Maydes and gentlewomen gave them to their favourites as tokens of their love." The handkerchief plays a tragic role in Shakespeare's "Othello." About the same time the ladies of France and Spain used this article, although mostly as a luxury and supplementary to the fan as a means of coquetry. Velasquez, the great portraitist of Spain, made a painting of the Infanta Margarita Teresa, showing her with a handkerchief held in dainty tapered fingers. A portrait of Ana, wife of the king of Spain, is shown with a kerchief. The czarina of Russia in the latter part of the last century paid $2,500 for a single embroidered handkerchief which took seventy years to make.

It is not known just when the kerchief came into practical usage. Primarily it was an article of ornament and luxury; highly perfumed, it was used by the belles and beaux of the courts of royalty. Gradually it became a recognized necessity and grew into common use.

In the "Voyage to Maryland" (1690), Evelyn gives this somewhat satirical description:

> Of pocket mouchoirs, nose to drain,
> A dozen laced, a dozen plain.

As scientific medicine developed, the handkerchief became a hygienic necessity as it prevented the indiscriminate spreading of germs from the nose and mouth.

The improper use of the handkerchief in blowing the nose is one of method. Through ignorance, laziness and custom we apply the handkerchief to the nose in the easiest way: We use it at the end of the nose or tip, partially pinching shut the nostrils and then blowing more or less violently. The air forced against the nearly closed openings offers considerable resistance to the passage of the nasal mucus, with the result that the material is forced back in the rear of the nose, often gaining entrance to the eustachian tubes and sinuses. Not much harm is done when the nose is in normal condition; but when it is diseased, then beware! Incidentally it is estimated that 75 per cent of the American people have some form of sinus trouble. So it behooves us to inform ourselves and act accordingly.

The tendency of the normal nasal secretion is to flow toward the back of the nose, or nasopharynx, through a constant movement of the microscopic hairlike processes of the lining

membrane of the nose, called cilia. When this secretion becomes infected, the movement of the cilia as well as the flow of the secretion is inhibited; and when force is now applied to the blocked or constricted nose covered with the handkerchief, the secretion is forced into the ears or the sinuses with resultant abscesses and complications. Particularly is this true and serious immediately after swimming, as the mechanical action of the water within the nose dislodges the infectious material, and so the blowing forces it into the ears or sinuses. The function of the lining membrane of the nose is also impaired by the mechanical action of the water, as the latter washes off the normal secretion, which is, in health, bactericidal, and also inhibits the movement of the cilia, thus allowing penetration of infection into the injured lining membrane.

It now becomes apparent why the lower animals that swim less often and blow their noses more according to Mother Nature are seldom subject to sinusitis or ear troubles. Some persons believe that the reason the quadrupeds are less afflicted with these illnesses is that their heads are in pendant position, resulting in better drainage from their sinuses, but this is not true.

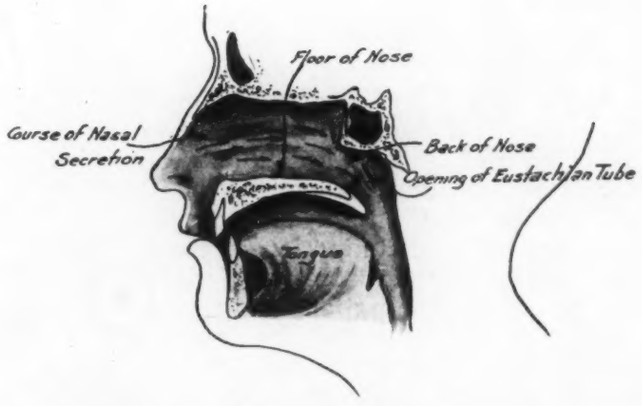
It would seem also that our forefathers would have little need for these instructions. The prevalence of ear and sinus infection was formerly much less than today, despite the fact that so little was then known of the anatomy and physiology of these important structures, to say nothing of diagnosis and treatment of diseases affecting them. Our forefathers simply followed the instinctive way.

Even today those persons close to nature, like the French farmer or the Russian peasant, blow their noses better than we do. Out in the field and alone, they instinctively and partially imitate Mother Nature. They know that by constricting or blocking first one nostril and then the other a greater force through the nose is effected, and so they empty the nostrils alternately, without use of kerchief.

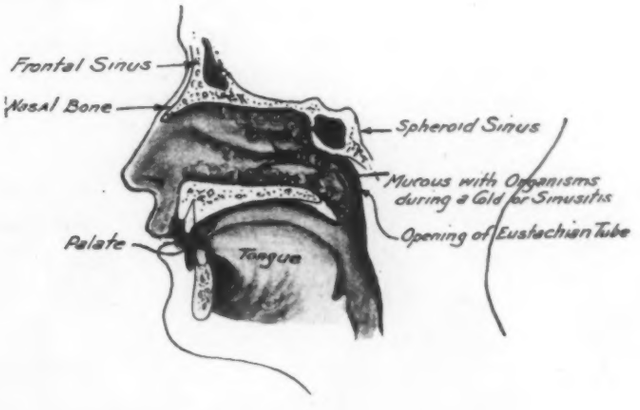
I would not advocate abolition of the dainty precautionary practices of the well bred in the use of the handkerchief. But certainly we should now adopt a correct method of blowing our noses, not only to prevent our own infection but the infection of others. This method consists of placing the handkerchief about 1½ inches above the tip of the nose, holding the handkerchief immediately above the nasal bones, the "bridge," with one or both hands, at all times keeping the nostrils open, and then blowing. Whatever there is in the nasal cavities will be expelled into the handkerchief, unless there is a mechanical obstruction. During a cold when the person may be the carrier of disease germs the modern hygienist would recommend that a soft paper tissue napkin, which can easily be discarded or burned, be substituted for the handkerchief.

The reward for the adoption of this, the correct technic in the use of the handkerchief, will be the prevention of serious diseases of the ear, nose and sinuses. On the enrichment of health depends our economic and social well being.

IN ORDER TO UNDERSTAND BETTER THE PROPER TECHNIC OF BLOWING THE NOSE, A KNOWLEDGE OF ITS ANATOMY AND PHYSIOLOGY IS HELPFUL.



THE TENDENCY OF THE NORMAL NASAL SECRETION IS TO FLOW TOWARD THE BACK OF THE NOSE, OR NASOPHARYNX, THROUGH A CONSTANT MOVEMENT OF THE MICROSCOPIC HAIRLIKE PROCESSES OF THE LINING MEMBRANE OF THE NOSE, CALLED CILIA. WHEN THIS SECRETION BECOMES INFECTED, THE



MOVEMENT OF THE CILIA AS WELL AS THE FLOW OF THE SECRETION IS INHIBITED; AND WHEN FORCE IS APPLIED TO THE BLOCKED OR CONSTRICTED NOSE COVERED WITH THE HANDKERCHIEF, THE SECRETION IS FORCED INTO THE EARS OR THE SINUSES WITH RESULTANT ABSCESSES AND COMPLICATIONS.

IT IS NECESSARY FOR PARENTS TO REMEMBER ABOUT A HEART MURMUR WHEN THEY ARE TOLD OF IT, AS IT MAY BE IMPORTANT FOR FUTURE REFERENCE.

HEART MURMURS

By H. A. SLESINGER

How important is this matter of murmurs? In the answer to this query may lie the secret of your child's health and his future happiness

"DOCTOR, what about that heart murmur that you say my child has? Does it mean that he has a serious heart condition and that he will be handicapped for life? Will I have to see that his activities are restricted?" These are questions with which a physician is frequently confronted on those common occasions when his stethoscope reveals an abnormal sound known as a murmur.

When a patient is examined by his doctor he usually expects to have the doctor "listen" to his heart and lungs with a stethoscope. Although this is one of the most important methods of examination today, it has been in use only since 1816. Prior to that time, physicians depended on cruder methods for their diagnosis of diseases of the heart and lungs. Thus we find a description of a common type of valvular disease, mitral stenosis, written by Vieussens in 1715 in which he gave a detailed description of the symptoms that the patient presented, such as shortness of breath and swelling of the ankles; but his examination of the heart itself was quite meager. He studied the general appearance of the patient and the character of his pulse and palpated the impulse that the heart made against the chest wall. He made no mention of any attempt to determine the size of the heart by means of percussion with the fingers, nor did he listen to the sounds produced in the chest either by directly placing his ear against the chest wall or by listening indirectly through an instrument. Such diagnostic measures were unknown at the time.

In 1761, Leopold Auenbrugger, an Austrian physician, wrote a book in which he described

the discovery that by thumping the chest wall with his fingers he could determine different tones which were produced by various diseases of the organs contained in the chest. His discovery went unnoticed for many years, until in 1808 Corvisart popularized this method of examination of the chest, which is known as percussion. A still more important discovery remained to be made by a young French physician, Laënnec, in 1816. Prior to his discovery, listening to the chest was practically an unknown method of physical examination. It is true that there are occasional references in the writings of earlier physicians which mention sounds heard in the chest, but such observations were merely curiosities. Bayle, a disciple of Corvisart, was in the habit of applying his ear to the heart region. Laënnec was a fellow student of Bayle, and he adopted this method of examination and practiced it for fifteen years.

One day Laënnec was consulted by a patient who presented symptoms of heart disease. He found that the patient was unusually fat, and he could gain little information from the ordinary methods of examination. The patient was a young female, and her age and sex prevented Laënnec from using his method of placing the ear against the chest wall to listen for sounds. Suddenly he remembered a simple acoustic fact that if the ear is applied to one end of a plank it is easy to hear a pin's scratching at the other end. He thought of the possibility of using this method in the physical examination which he was about to make. He then took a quire of paper, rolled it tightly and applied one end of the roll to the chest wall and the other end to his own ear. He was pleasantly surprised to find that he could hear the beating of the heart more clearly than if he had placed his ear directly to the chest.

During those few minutes, Laënnec discovered what has proved to be one of the most valuable methods of physical examination. Laënnec spent the next three years developing an instrument that would be appropriate; he finally developed a hollow wooden tube one foot long and called it the stethoscope. This instrument remained the popular type of stethoscope for three quarters of a century and is still being used in some countries. The single wooden cylinder has, however, been replaced by a metal or rubber bell to which flexible rubber tubes and metal or hard rubber earpieces have been attached; the latter type of stethoscope is the one which is popularly used at present. This method of examination is known as auscultation.

Laënnec spent the remainder of his life studying the various types of sounds which were produced not only in the heart but also in the lungs. There were certain normal sounds as well as certain sounds that were found to be associated with disease. Auscultation became popular with physicians, and other observers also began to study these various sounds. They found that normally the heart action caused two sounds to be heard; these sounds were sharp and clear and resembled the noises made by sharply uttering the syllables "lub-dub." Quite frequently observers noted that these sounds were either partially or totally replaced by a blowing or swishing sound which often sounded like the syllable "who." Such sounds were most commonly found associated with disease of the heart valves, and it became the usual custom for physicians to place most of their emphasis in heart examinations on the presence or absence of these abnormal sounds, which became known as murmurs.

IF THE HEART MURMUR IS ORGANIC,
THE CHILD SHOULD NOT PLAY HARD—

This led to many serious errors in diagnosis. Many patients who did not have heart murmurs were later found to have died of some heart condition, whereas many other patients whose cases were diagnosed as serious heart disease on account of the presence of murmurs, surprised their physicians by leading a perfectly healthful existence and living to a ripe old age. Laënnec himself described a blowing type of murmur in mitral stenosis. *(Continued on page 250)*

—BUT IF IT IS MERELY FUNCTIONAL,
HE NEED NOT BE UNUSUALLY CAREFUL.

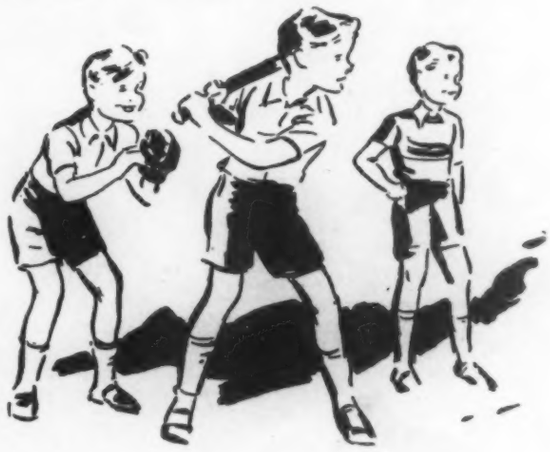


Figure Skating

By DUDLEY B. REED

NAKED TREES creak in Borean blasts. Those with the wherewithal have decamped to Florida, the Riviera or Bermuda. But there are those whose beings respond to the chill challenge of Old Man Winter with quickened pulse, with skin atingle, with a feeling of fresh zest for living. In them arises a sort of physiologic counterpart of that spiritual something which makes men want to climb Mount Everest, as they will do one day. To most people, spring is probably the loveliest season of them all, but spring could scarcely bloom so fair but out of winter's bleak and leafless barrenness.

Perhaps in youth you may have been, even as I was, one of a group which sang with endless reiteration, "Spring would be but dreary weather, were there nothing else but spring." And so there are not a few of us who would rather come into spring out of winter than follow it around the globe until it cloyed and we could not enjoy it or any other season.

RIGHT OUTER EDGE FORWARD

Winter has its challenge; winter has its beauties, and winter also has its glorious sports, which are being recognized and increasingly enjoyed in this country. Some would have you believe that coasting is the best of these sports, coasting or toboganning, with their breathtaking rush down the steep incline and the sting of icy air on your cheek. Others will assure you that skiing is as far ahead of skating as the latter is ahead of hop-scotch. If this opinion is correct, skiing is too noble a sport for mere man and should be reserved for Mount Olympus, since skating, according to all standards, must be rated as a wonderful sport.

Its only shortcoming is that it is not as widely available as some other sports, but rinks are being established in many cities. One of the competitors in the 1937 United States figure skating championships was from Los Angeles, so one might conclude that she had skated somewhere other than on Hollywood's sets. In indoor rinks, conditions are not quite perfect, since they are heated and the stimulus of real winter air is lacking. But often the conditions outdoors are not perfect either, as the ice may be poor and there may be a high wind. The ideal, naturally, would be perfect ice outdoors with no wind and a temperature of about 20 degrees; but if we had the ideal, hope would be on relief.

At any rate it is usually more available than coasting and skiing, and it's on the level. There can be no doubt that swooping down a mountain trail on skis, past evergreens bearing snow in lieu of cones, down gullies and up again, around turns expected or unexpected, all at express train speed, raises the skier to a pinnacle of physical and spiritual delight rarely attained. But he must get to the top of the trail, and there is equally no doubt that if he goes up under his own power, whether by the herringbone method or any other, it is work. If he is pulled up holding to a rope, think of the jolt to his pride!

With no disrespect to this grand and growing sport it may be said that it is probably not one to be taken up in middle age or perhaps to be enjoyed when bones are brittle. Therefore, we shall consider skating only among the winter sports and propose to mention its history, say a word about speed skating and hasten on to figure skating after the fashion of the preacher who, in speaking on the world, the flesh and the devil, said that he would speak briefly of the first, touch lightly on the second and hasten on to the third.

Plunging into the realm of speculative history, it is difficult to imagine that in countries where the water froze over at the appropriate season, males both young and old would not try running and sliding on the ice. In fact, even if they did not try it, there is adequate reason to suspect that they may have slid. It would soon be found that bare feet or even sandals or fur boots were not well adapted to the sliding business, and some sort of wooden runner would have been devised and attached to the foot with leather thongs. Many of us have seen the old-time wooden skates, which were supplanted first by cast iron and then by steel, the material used today. Originally strapped to the feet, later models were attached to ordinary, heavy shoes by clamps which would sometimes become loose at critical moments. The usual practice in this country now is to have the skates riveted to skating shoes which are light, strong and high, giving some support to the ankles. For racing, the blades are made longer. Though the modern style is better for the shoemakers and the ankles it is, of course, worse for the pocketbook.

LEFT OUTER EDGE BACKWARD

This sport has appeared at least modestly in books and stories and now, with less modesty, takes its place in the cinema where it is extremely well done. From my childhood come memories of two stories having to do with skating—the one Hans Brinker, of course, with the eventful race for the silver skates in which the fat boy, outdistanced as fat boys always are, gave up the contest, stopped and wiped his ruddy face as fat boys will. "At what are the people laughing? Oh, at that fat boy in the rear." Naturally the people were laughing, and naturally he was in the rear. Also naturally he laughed with them. I wondered then and I wonder now whether boys are good natured because they are fat or are fat because they are good natured.

The other was the story of a frontier boy coming home across the lake on his skates

toward evening and being pursued by a pack of wolves. At first he tried to skate faster than they could run but found them gaining on him. In desperation he swerved suddenly to a turn, and the wolves, attempting to turn, slid by, snarling and slavering, or whatever wolves do under such circumstances, until their momentum was exhausted and then started again for their prey. By repeating this maneuver but skating farther homeward each time than he did in the other direction our hero finally reached the protective baying of the hounds of home—safe at last, an exciting adventure, a satisfactory outcome, and an example of the quick turning power of a skater. It wouldn't make a bad movie shot.

Speed skating as used in racing and hockey is wonderful exercise, and on skates an active young man can cover considerable distance in a relatively short time. He can better the running time at all distances over 100 yards, as is shown by the following table of American amateur records for skating and running. The table gives the accepted records at the distances indicated, the speed in yards per second and the relative speeds in terms of the percentage of the skating speed which the running speed represents.

	Skating		Running		
		Yards		Yards	
Distance	Record	per second	Record	per second	Per cent
100 yards	0: 9.4	10.6	0: 9.4	10.6	100.0
440 yards	0:35.4	12.15	0:46.4	9.48	78.0
1 mile	2:38.4	11.1	4:06.7	7.1	64.0
2 miles	5:33	10.6	8:59.6	6.5	61.3
10 miles.....	31:11.2	9.4	50:15	5.8	61.6

It may be of interest to note that the records for 100 yards are exactly the same, which is due to the fact that the racing skater starts by practically running on skates and can't do this as fast as without skates. The sprinter seems to attain his maximum speed in the second 50 yards while the skater reaches his maximum speed after the first 100 yards. It seems a bit strange that the skater's speed in yards per second for 2 miles is exactly that for 100 yards.

Ice hockey is one of the fastest and most thrilling of the winter games, both for participant and for spectator, but both that and ice racing are for young persons and should not appeal to the middle aged man. Furthermore, if this middle aged man uses the long, straight bladed hockey or racing skates he can do little but propel himself from here to there. It is pleasant and healthful exercise, but there isn't much variety to it.

The tendency for the last twenty-five years has been for all youngsters on the threshold of that great experience, learning to skate, to receive for Christmas a pair of shoes with skates attached, and these skates have practically always had the straight blades of hockey skates. The desire of the children was for speed, and, further, they must have what all the rest have, for children are the most conservative people in the world in this regard. They dislike wearing or using anything which is not in the current fashion. Speed skating on hockey skates is fine. Racing is fun and perhaps the most natural activity of childhood. Cross tag on skates is splendid fun, and so is "pom-pom-pullaway, come away or I'll fetch you away," and so is prisoner's base; but these are all activities of youth, and anyway if a middle aged man wanted to play tag he could skate nearly as fast on figure skates and perhaps dodge more quickly. However, if he learned to skate on hockeys he is not lost for all time; he can reform and take to figure skates in his maturity, although, as in other sports, youth is the accepted time. He could have learned more quickly and better in youth, but he can still learn as a man.

And so now it is of figure skating that I would speak, and in speaking of this sport, it is meet and proper to dust off the superlatives and use them with verve and enthusiasm. All inhibitions may be inhibited. A man can scarcely think of a better recreative sport.

Consider it from the point of view of adaptability to the individual in severity. He may skate so gently as to put forth only the slightest muscular effort. Or he may indulge in routines which make it one of the most violent and exhausting of exercises. And he may so comport himself as to occupy a position at any point between these extremes. The effort required in figure skating need not be greater than that of walking. Indeed the best figure skater, other things being equal, is he who makes and shows the least effort. This means that here is a sport which may be continued for most of one's life. It requires but one person and little equipment, and the equipment lasts a long time.

Going back to my youth and to the skating rink conducted by that worthy colored gentleman, Tom Gayters, may I introduce to you a group of boys spending a gorgeous Saturday afternoon skating. One of them spies a rotund, middle aged man approaching with skates; another identifies him as Z. Swift Holbrook, a newcomer from Chicago reputed to have a bank account and under a cloud with the younger element because of the uncertainty attending that Z; and a third opines that he's too fat to put on his own skates. It was regarded as a wonderful joke when this opinion turned out to be literally true, and a boy was hired to put on the skates. We were fairly atwitter with enthusiastic anticipation: Here was going to be rare sport. Breathlessly we waited for the Holbrook fundament to meet the ice. He came out of the warming house and stepped on the ice; to warm up he skated around a bit in excellent style and then did a few figures which we youngsters had seen *(Continued on page 249)*

EYES and the Office Worker

Ewing Galloway

ONE DAY last fall I sat at a dinner table with a group of professional men. A man of large affairs, an executive of considerable skill and one in contact with many employees, suddenly said, "I dread this season of the year because when we return to standard time after months of daylight saving, we have many complaints from our various departments. These increase in number during the winter months, and for some time I have tried without much success to analyze the situation."

A physician sitting opposite him replied, "Probably that is because your employees know the vacation period is over, and they look forward to a long winter with less physical exercise and stimulation."

A dentist sitting next to the physician commented that, strangely enough, as he pondered over the executive's statement he recalled that many of his

By ARTHUR J. BEDELL

patients had more indefinite pains and aches during the winter months than throughout the rest of the year.

Next to him was an architect who said, "The whole trouble is that most people live in poorly ventilated, superheated houses, and this in my opinion is the real cause for the complaints that you hear at this time."

A quiet, reserved, studious man, an electrical engineer by profession, suggested that the trouble was with the illumination. After the long summer days, every one becomes more engrossed in close work, and the ordinary offices and homes are not correctly lighted.

I had up to this time kept out of the conversation, but the executive then turned and asked my opinion. I answered that in all probability all the factors mentioned were combined to cause certain symptoms of physical discomfort not uncommonly referred to eyes. These symptoms are usually described as tired eyes and an inability to concentrate, and they cause the employee considerable mental anxiety as to whether his work is satisfactory.

We had gone as far as this in the conversation when the speaker of the evening took the platform, and while he was being introduced I suggested that six or seven of us investigate the subject that we had been discussing and at our next meeting report our observations to see whether we could eventually have a clearer idea of why people engaged in close work had more ocular discomfort during the winter than during the summer.

A month later we met again. The lighting engineer immediately began the discussion of some of the facts he had discovered in his investigation of the lighting of some city offices. Our state office building, a towering, thirty-five story structure standing on a hill, is often bathed in sunshine, and theoretically the illumination there should be excellent; but as a matter of fact, he found that when the sun was shining brightly the light on the desks near the window was so brilliant and the glare so intense that the window shades had to be drawn, with the result that those farther back in the room were in shadow. Because of this, many objections were made regarding the darkness. He knew the head of one of the departments, so he took the little gadget called a light meter, and made several visits to this department. With this instrument he had proved that the light varied not only as the daylight varied but particularly that as one went into the room away from the windows there was a sharp and extreme drop in the amount of light registered.

The architect then broke into the conversation to say that his profession was confronted with two problems: First, they had to make an attractive interior and, second, they had to arrange the rooms and floor space according to the ideas of those who were in charge of the particular departments. This frequently meant the building of partitions and the rearrangement of desks, filing cabinets and the mechanical apparatus in common office use. He felt that the engineer had made an extremely important point and that all should collaborate and try to convince employers that an abundance of light is one of the essentials to the production of good work.

The executive, who had been listening intently, then leaned over and said, "There must be a lot in what you say, but up to this time it has been rather difficult for us to select any operable plan. We had a so-called light expert in the plant one day, and he told us we should make certain changes. I asked him whether he had heard the current story regarding the illumination of the magnificent marble structure known as the home of the Supreme Court of the United States, where that most honorable body sits and listens to arguments and renders opinions. The light expert said that he had not heard it. The sum and substance of the tale is that when the Court was opened, they found that the lights were focused directly on the revered gentlemen, just as though they were sitting under spotlights. The justices refused to stay on the bench, and the lights had to be rearranged at a considerable cost. The light expert remarked, 'Well, that was unfortunate.' And I agree. Indeed, I have felt it was so unfortunate that I have hesitated to recommend any new lighting system until I can assure the management it will be worth while."

"What do you mean by worth while?" asked the doctor.

The executive replied, "I mean, first, that my workers will be more comfortable and, second, that as a result of the expenditure, greater production can be obtained and in that way save the cost of the installation."

The dentist, who sat on the fringe of the group and who up to that time had added little to the discussion, told us that from his personal experience and the reports of many others in his profession he was convinced that proper illumination pays big dividends in better work and less fatigue. "As you know," he continued, "we dentists usually practice in offices with white walls and use a brilliant light, free from shadow and without too much heat. This is a cluster of bulbs which can be so focused that we get a clear view not only of the particular tooth on which we are working but also of the entire mouth." All of us agreed that we had noticed the changes that had taken place in dentists' offices, and we readily acknowledged there was much of value and implied practicability in his statement.

The engineer reported that during the month he had studied several books and articles. He recalled that some of the authors made the pronouncement and gave the impression that

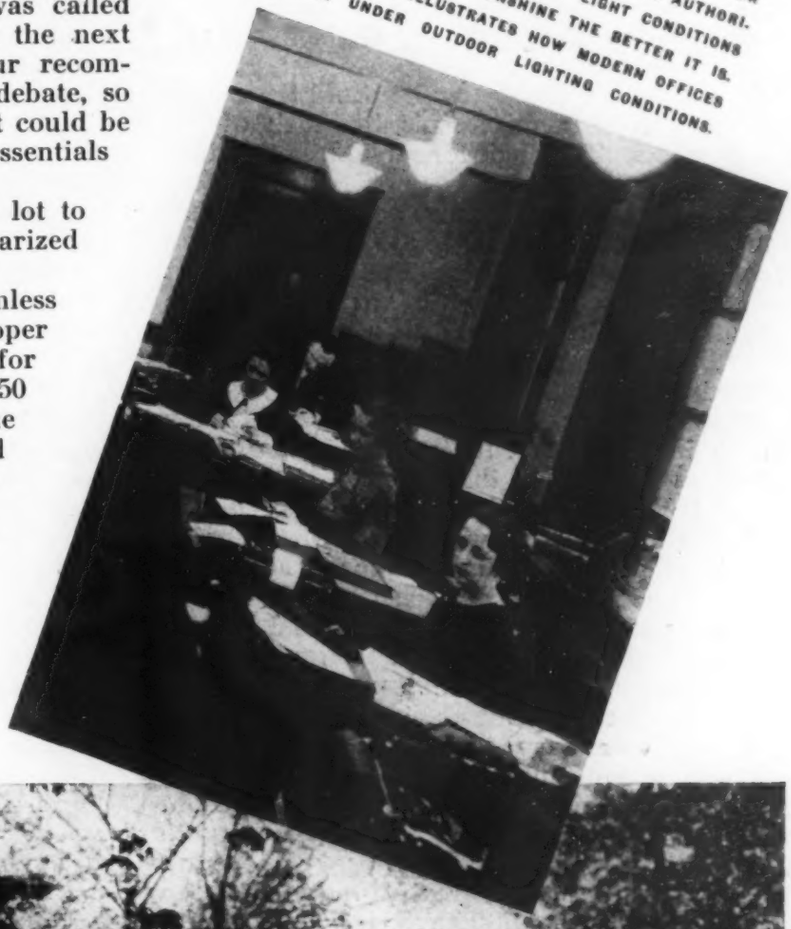
light was everything, that if there were sufficient illumination the eyes would act normally, even without glasses. I told him that the writers were guilty of gross exaggerations. As I began what was to be a lengthy discussion regarding the function of eyes the meeting was called to order. We decided that before the next session each of us would write our recommendations and bring them in for debate, so that, if possible, a concrete statement could be made as to what we considered the essentials for the ocular comfort of workers.

At our final meeting it fell to my lot to open the discussion, which was summarized under three headings.

1. Eyes cannot be comfortable unless correct glasses are worn in their proper position. The lens focus must be for the work at hand. For instance, a 50 year old architect working on the board 20 inches from his eyes would need entirely different glasses than he did for the same work at relatively the same position when he was 30 years old.

2. The general health of the employee must be maintained at the highest level. A chronic debilitating disease necessarily reduces the worker's efficiency.

IN REGARD TO THE BEST QUALITY OF LIGHT FOR OFFICE WORKERS, IT IS AGREED BY MOST AUTHORITIES THAT THE MORE NEARLY LIGHT CONDITIONS APPROACH DIFFUSED SUNSHINE THE BETTER IT IS. LOWER PHOTO ILLUSTRATES HOW MODERN OFFICES APPEAR UNDER OUTDOOR LIGHTING CONDITIONS.



3. Experiments have proved that for close critical work the illumination must be more uniform and better dispersed than that which we formerly considered adequate and that both shadow and glare must be avoided. How this is to be accomplished depends on the type of work, the size of the room and the number of workers in the room.

The executive asked how he could determine the exact light requirements for each of his departments. The engineer replied that all that was necessary was to call the office of the local public service company and ask them to send a number of light meters. These could be placed throughout the room being tested, and a chart could be made to show the variations in the amount of light. He could then get the details regarding the number and position of the lamps needed from the service company.

The architect said, "The trouble with many new buildings is that the esthetic side of light has been stressed at the expense of the utilitarian." He also stated that he and the engineer had conceived a plan which could be adapted to any office, a new building or a renovated plant. The scheme simply consists in disregarding the windows and using artificial illumination entirely. Nothing more is required than clean, light colored walls, so painted as to be free from glare; a white or light colored ceiling, and lamp units suspended from it in sufficient number to give a uniform light throughout the room. For ordinary work these indirect light units must be near enough to the ceiling to floodlight the room and close enough together so that there will be a real diffusion between one unit and the next. The reflector underneath the lamp can be either one of the aluminum type or milk glass or any other opaque material. In a small office with a light-colored ceiling a single urn with a sufficiently powerful lamp can be placed so as to supply a perfect light throughout the entire office. All these installations can be made to give a pleasing architectural effect.

Rewiring an old building is not a very expensive task, but it is absolutely necessary that the wires be sufficiently large to carry the load and deliver the current to the lamps in the required amounts. If the copper is overloaded it increases the cost and lessens the efficiency. It is easy to place the wires in conduits attached to the ceiling, making it unnecessary to destroy the wall or go beneath the floor.

If there are only a few workers in a room and they are engaged in either tabulating or typing, a light unit can be placed on each machine or desk. The ideal arrangement for a lawyer's office is indirect illumination from the ceiling of sufficient power not only to make desk work easily visible but also to cover the files and books so that, in all parts of the room, references can be read.

Our discussion led us to the conclusion that these are the essentials for the ocular comfort of workers: (1) properly corrected eyes, (2) the preservation of good health and (3) efficient illumination.

[NOTE.—*This is the fifth and concluding article in a series on the effect of illumination on the eyes. The previous articles dealt with lighting conditions in general and with specific lighting problems in the home, in the school and in industry.*]

HEALTHGRAMS — *FROM ARTICLES IN THIS ISSUE*

¶Those who are wise in the ways of childhood have come to believe that if the fair questions the child asks are faithfully and adequately answered, he will never fall into the annoying habit of asking questions for other reasons than the gaining of information. *See page 215*

¶The essentials for complete ocular comfort of workers are properly corrected eyes, the preservation of good health and efficient illumination. *See page 211*

¶On the enrichment of health depends our economic and social well being. *See page 203*

¶Unless something is done about the prevalence of venereal disease, and done soon, we may become a "syphilized" nation instead of a civilized nation. *See page 201*

¶Man's ability to continue existence on the earth is by no means a certainty, as the insects are in many ways much better prepared to survive here than he is. *See page 231*

¶Winter has its challenge; winter has its beauties, and winter has also its glorious sports, which are being recognized and increasingly enjoyed in this country. *See page 208*

¶Don't become unduly alarmed when a heart murmur is discovered in your child; it means that he should have further examinations made in order to determine whether or not it is organic. *See page 206*

¶The critical factor in energy recovery is not how long you sleep but how completely your sleep is recuperative. *See page 238*

Answering Children's Questions

BY EMMA R. SMITH

The child's best learning years are spent in the home. Many parents stifle development by giving incomplete, incompetent and incoherent answers to the child's sincere desire to know

THE CHILD'S first questions are usually either "where" or "what" questions. As early as 2½ years, children begin to ask, "Where was this before it was here?" "Where did the clock come from?" "Where is heaven?" "Where is father's office?" Sometimes these change to "What is the sky?" "What is a baby for?" Finally the child asks, "How is this put together?" "Why?" "How does the clock go?" "Why do horses have legs?" Considering the scope and variety of the questions the parent is called on to answer, it is little wonder that he dreads the onset of the period of reaching out for information which occurs in the life of every normal child. Yet no parent is so lacking in his devotion to the child's interests that he would be willing to do away with the extreme questioning stage, since through his questions the child learns much that is of value about his world, and through them he establishes a habit that is wholesome and serviceable.

Children's questions in general fall into two classes: (1) the genuine question, asked because the child wants information; (2) the question asked for some ulterior purpose, such as to punish Mother for a fancied offense, to pay some one back for a real or imagined unfairness, to gain attention or for any one of numerous vague reasons. As the response the parents give to genuine, seeking questions usually prevents the habit of using unfair questions, let us first consider the true question, which the child uses because he wants to find out.

As soon as they are born, children begin to find out about the world in which they live. Through sight, hearing, touch, taste and smell they learn hundreds of things about their food, their clothes, the furniture, the home, objects in the home, animals and people. It is not long

before they begin to make use of speech to continue their quest for information. Perhaps many of us fail to realize what an important signpost in life is reached when a child is able to use words. As soon as may be he tries to use them for immediate needs. One of these needs is finding out about things; so the child begins to ask questions. He sincerely wants to know. He is relating himself to all other things in his world. He is doing well for so new a human being; but as his experience is so lacking, there are immense gaps in his thinking. His isolated and often distorted thoughts cause his questions to seem foolish and useless to the adult, who, having forgotten his own attempts at the acquisition of knowledge and skill, becomes impatient with the child's persistent experimentation. Nevertheless the parent must make an earnest effort to give the child the information he seeks. No matter how busy the mother may be, she must always hold in mind that it is the child's business to learn and that it is part of her duty to see that his home and family are serviceable in meeting his need for finding out. A sincere, straightforward, truthful answer should be given to every fair question that the child asks.

That the answer be clear and truthful does not mean that it must be exhaustive. Children often cannot understand the details of a subject, while they are intensely interested in its broader aspects. Exhaustive details confuse the child. He isn't ready for them and doesn't want them. Said 4 year old John, "Did I come out of an egg, the way a chicken does?" The mother began to tell the story of birth. "But Mother," said John, "did I or didn't I come out of an egg the way a chicken does?" "No," said his mother, "you didn't." "All right," said small John and, evidently satisfied for the time being, he ran out to play. A child has difficulty in relating the details of a large new subject. Answers to his questions should follow his lead. As nearly as possible only the question asked should be answered, clearly, simply but with little detail.

THAT THE ANSWER BE CLEAR AND TRUTHFUL DOES NOT MEAN THAT IT MUST BE EXHAUSTIVE. THE CHILD'S INTEREST IS USUALLY MERELY SUPERFICIAL.

Those who are wise in the ways of childhood have come to believe that if the fair questions the child asks are faithfully and adequately answered, he will never fall into the annoying habit of asking questions for other reasons than the gaining of information. When a child is satisfied with an answer to a question he returns to the answerer with confidence. He has faith that all his questions will be answered in a way he can understand. If, however, some weary, harried mother says, "Run along, I have no time to bother with you!" or "You're too young to be asking such questions!" or, to a neighbor, "Junior just takes me off my feet with the questions he asks," Junior is going to consider himself in a new light. Questions, besides being answer getters, are good for other purposes—to surprise people or annoy them or for revenge. Junior then experiments, and the parent has a different problem to deal with. He has a type of question used for anything but information. Preventing this type of question is much easier than dealing with it once it has become a habit. Intelligent study of the situation will determine the reason for the annoying question. It is then a problem of doing away with an undesirable habit, following the rules for changing such behavior.

Perhaps the question which puzzles mothers most is the one about the child's origin. A group of intelligent mothers living in the same neighborhood decided on answers they would make to certain questions. The age range of the children in the group was from 3 to 8 years. The leading question, "Where do babies come from?" had already been asked by one of the children. The mother had answered, "They grow in the body of the mother." "How do they get there?" "The tiny egg from which a baby grows is a part of the mother's body as she grows up." "How does the baby get out?" "When it is ready, strong enough and large enough to live in the world, the mother's muscles push it out." "Where?" "Through the opening which stretches when the baby is ready to be born." "Why does the mother go to the hospital?" "Because she needs the help of the doctor and the nurse, who find the hospital more convenient. Sometimes babies are born at home." "If you had a baby, would it belong to all of us?" "Yes, it would be one of our family." "Would it be Daddy's baby?" "Certainly." "Why?" "Because he gives the baby the material it needs to grow." "Can I tell Mary

A SATISFACTORY ANSWER INSPIRES CONFIDENCE.

[a neighbor] about babies?" "Babies are so precious a part of the family that each mother wants to tell her own children about them."

In the case of this group the mothers, who often compared notes on the project, found that their answers satisfied this particular group; that the children did not discuss "babies" with each other; that they returned to their mothers with further questions, and that before the age of 5, each child in the group had asked either where he came from or where babies came from.

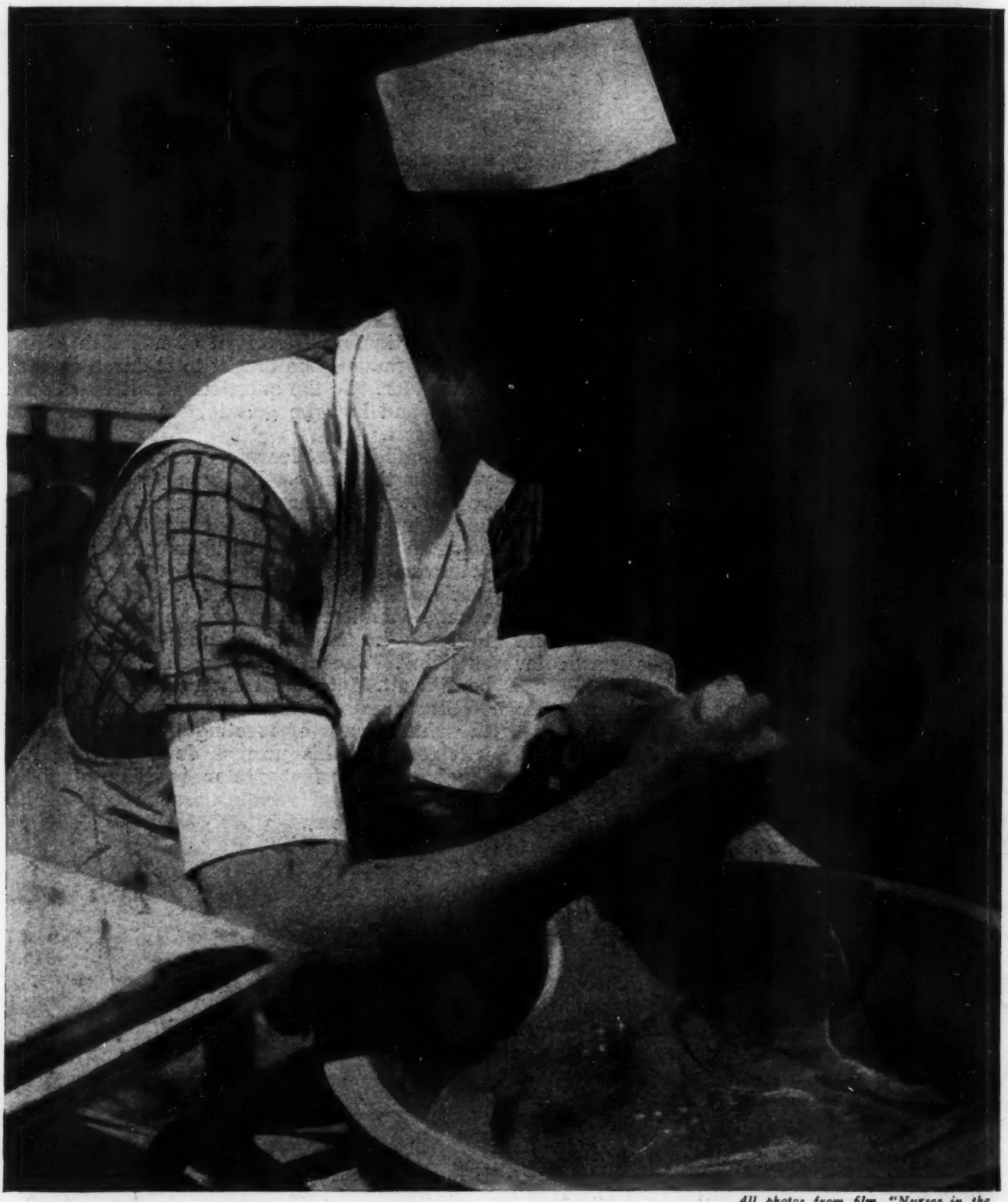
Questions about sex must be answered according to the child's level of development, his needs and his personality. In answering all his questions the mother must follow the child's lead. Knowing he will gain satisfactory answers from his parents the child will return to them for further information.

Children are not very old before they encounter death in some form. Even though parents protect the child from contact with death, sooner or later he becomes acquainted with the fact that people die. One 4 year old reasoned it out from a Thanksgiving story in which a turkey was being fattened for the feast. As death is closely connected with some religious beliefs, each parent should make the explanation that is understood in that belief. There certainly is need for clear thinking when a child asks, "What is it to be dead?" In the form which the child will understand, the mother should convey the ideas that the dead person no longer feels anything, in body is not suffering, is "through" with the world, has probably finished her work. As little emotion as possible should accompany the answers. If death occurs in the family, the parents should protect the children from too much emotional strain.

Much current discussion of the Santa Claus question is in humorous vein, yet little children may be as deeply injured through mishandling of this idea as through any other unintelligent training. Parents must take some stand on the question. They must, first of all, realize that whatever their children think about Santa Claus has come about through what they, the parents, themselves think. Children aren't born knowing about Santa Claus. They adopt the ready-made idea from the family. It is important for children to be taught, all the way through, that we never see the real Santa Claus. The man down on the street at Christmas time is dressed up to look like Santa, but no one has ever seen the real Santa. The spirit of unselfish giving should gradually be taught to children as they grow older. To the questions about how Santa comes and how he gets in, "maybe" answers are wisest.

The child's best learning years are the early years in the home. In these years, life may be a pent-up, narrow existence, or it may be a thing of joy. It hurts every decent human being to think that a child may be unhappy; yet even in homes where the parents have received liberal schooling, one sometimes finds cruel misunderstanding of the child. Efforts to learn in the home should be as natural as living. There is no reason why it should be difficult. Intelligent observation on the part of the parents, affectionate understanding and thoughtful ways of meeting the child's needs will result in his normal development. Not the least important factor in his growth is the cheerful and intelligent answering of his genuine questions.

QUESTIONS ARE ALSO USED TO GAIN ATTENTION.



All photos from film, "Nurses in the Making," courtesy Harmon Foundation

NURSES are made—not born. And what are good nurses made of? Patience, diligence, understanding, intelligence, skill, tact, cooperation and the capacity to assume responsibility as well as to take orders. In a motion picture made in cooperation with the New York Hospital School of Nursing, the Harmon Foundation gives the highlights of a modern nursing curriculum.

"NURSES in the MAKING"

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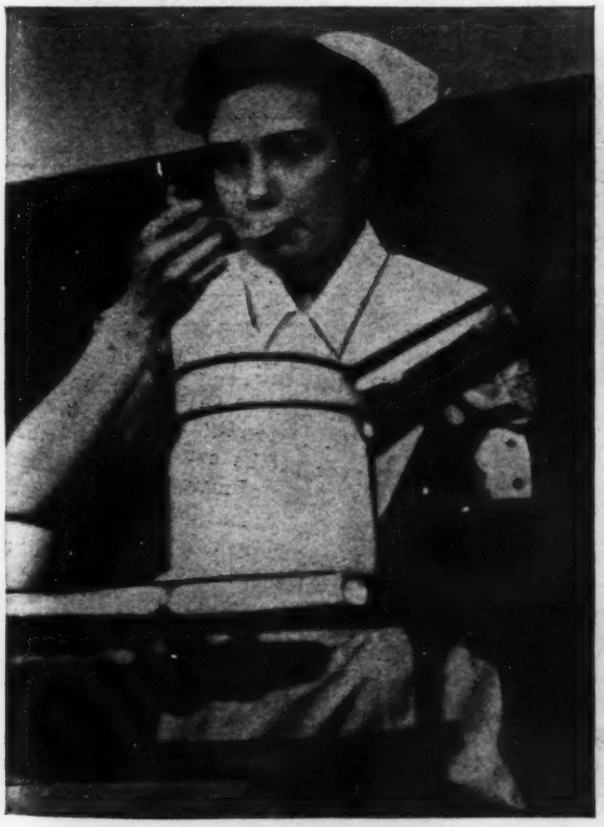
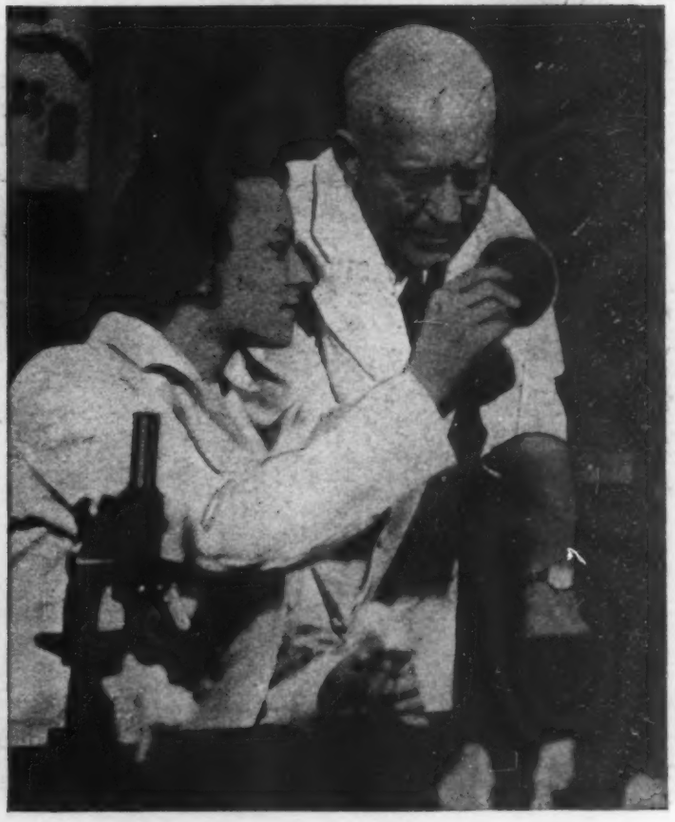
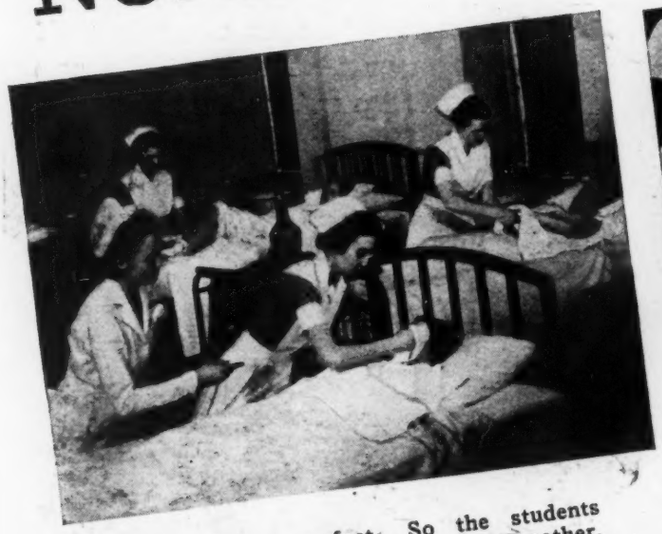
PRECLINICAL STUDY in laboratories and classrooms provides a sound scientific foundation for later nursing practice. At the right, below, the new student learns the mysteries of bacteriology.

A COURSE IN COOKING emphasizes nutrition, dietetics and the proper preparation and service of foods. Below, a first-year student samples her own cooking in the nutrition laboratory.





"NURSES in the MAKING"

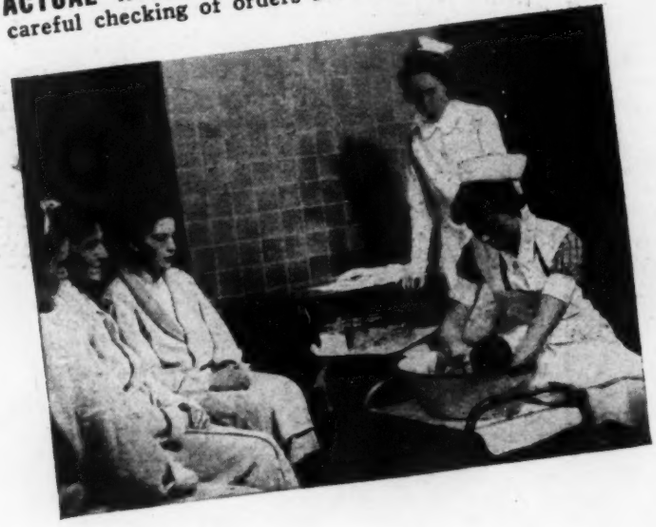


PRACTICE makes perfect. So the students first try their nursing technics on one another.

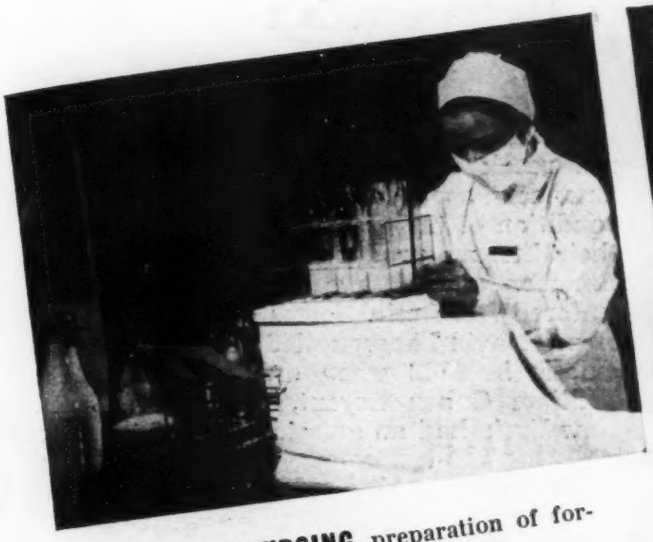
HER FIRST CONTACT with patients is as an observer in the outpatient department.

ACTUAL NURSING PRACTICE includes the careful checking of orders for medication.

SCRUBBED and in gown and mask, after a course in operative technic she may assist.

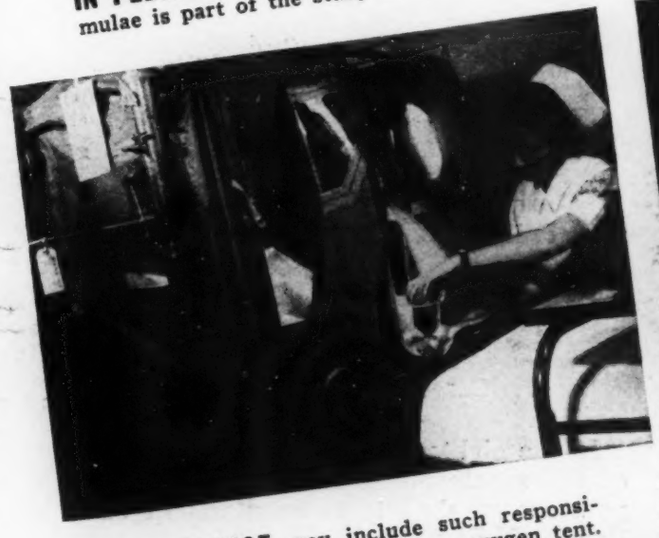


BETTER BABIES because of better care. Four months of instruction and practice in maternity nursing in the second year of the course include the principal phases of maternity and infant care. As the student learns infant care she is increasingly able to teach mothers. Convalescent mothers watch a student demonstrating the baby's bath, with a supervisor watching in the background.



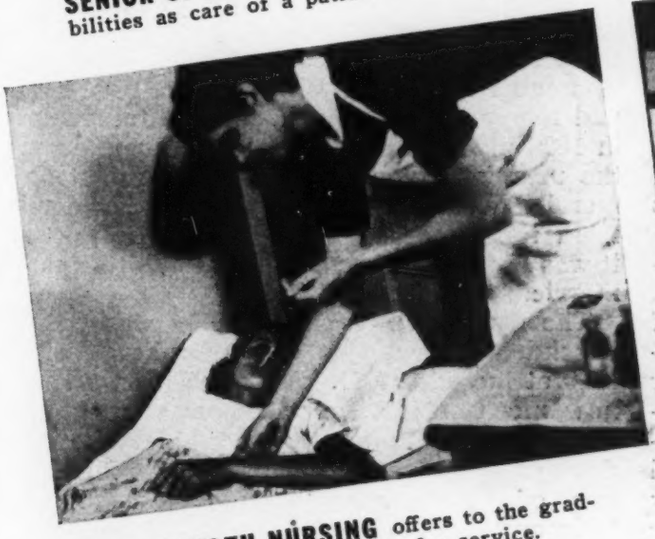
IN PEDIATRIC NURSING preparation of formulae is part of the study of child care.

THE NURSE AS TEACHER requires ingenuity and patience in helping the convalescent child.



SENIOR SERVICE may include such responsibilities as care of a patient in an oxygen tent.

IN A HOME, under supervision, she applies the principles learned in the hospital.



PUBLIC HEALTH NURSING offers to the graduate nurse broad opportunities for service.

PRIVATE DUTY is one of the most familiar fields of service open to the graduate nurse.

TUBERCULOSIS and Literary Genius

By JAMES A. TOBEY

This dragon among diseases has despoiled the world of much brilliance and talent through the untimely death of numerous gifted authors

JOHN KEATS

"THERE IS a dread disease," wrote Charles Dickens, "in which the struggle between soul and body is so gradual, quiet, and solemn, and the result so sure, that day by day, and grain by grain, the mortal part wastes and withers away, so that the spirit grows light and sanguine with its lightening load, and, feeling immortality, deems it but a new term of mortal life—a disease in which death takes the glow and hue of life, and life the gaunt and grisly form of death."

The dread disease so ably characterized by the great novelist is tuberculosis, which has been responsible for the early deaths of a legion of celebrated writers and artists.

Sidney Lanier, the lyric poet who died of tuberculosis in 1881, epitomized in these words the peculiar elation sometimes noted in the tuberculous: "All day my soul hath been cutting swiftly into the great spaces of the subtle, unspeakable deep, driven by wind after wind of heavenly melody." And Robert Louis Stevenson, a prodigious and brilliant literary worker despite a life of constant suffering from tuberculosis, said that he had done his work unflinchingly through fourteen years of sickness, and "for so long, it seems to me I have won my wager and recovered my glove.—And the battle goes on—ill or well, it is a trifle; so as it goes."

Recently I have been reading Van Wyck Brooks' interesting and able account of the "Flowering of New England." While I do not have the book before me at the moment, I do not recall that he devoted any appreciable amount of space to the influence of the physical condition of the great New England writers on their literary productivity. Yet Ralph Waldo Emerson and Henry Greenleaf Whittier both suffered from mild forms of tuberculosis, and Henry David Thoreau died of pulmonary tuberculosis in 1862 when only 45 years of age. William Cullen Bryant, who later moved to New York, had an arrested case of the disease.

ELIZABETH BARRETT BROWNING

In the eighteenth century and the early part of the nineteenth a score of minor American poets succumbed to tuberculosis in early life. Prof. E. L. Pattee in his book "The First Century of American Literature" lists about a score of young writers who were tuberculous. None lived to be over 33 years of age. Thus John Rodman Drake, a physician as well as a poet and newspaper columnist, died of tuberculosis in 1820 in his twenty-fifth year. Lucy Hooper, the promising young poetess who might have married Whittier, was only 24 when her demise from tuberculosis occurred in 1841. Possibly it was because of her death that Whittier never married.

The earliest American novelist was Charles Brockden Brown, who died of tuberculosis in 1810 at the age of 41. Although his works are now more or less forgotten, he was the precursor of Irving and Cooper, and the most distinguished man of letters of the time. In two of his novels, "Arthur Merwyn" and "Ormond," there are masterly descriptions of the yellow fever epidemic in Philadelphia in 1793. Another writer with a somewhat similar name, Charles Farrar Browne, best known as

the humorist Artemus Ward, was only 33 years old when tuberculosis claimed him in 1867.

A young brother of Ralph Waldo Emerson who was looked on by every one, including Ralph, as the most brilliant member of the family, died in 1834 in Puerto Rico, where he had gone in quest of a cure for tuberculosis. This brother, Edward Bliss Emerson, had graduated from Harvard in 1824 as first in his class, had studied law under Daniel Webster and had begun to show literary distinction when death interrupted his career.

The theory has been advanced that lung diseases made such terrible inroads on the literary figures in America in past centuries because they were a selected group. The weakest members of a family, unfit for rigorous careers as farmers, seafarers or merchants, or even for law or medicine, were shunted into the presumably placid life of literature. They had the time to acquire education and to use it in the one craft thought to be best suited to their delicate constitutions. Actually, literature was not then and is not now an occupation for the lethargic. The hard work required of the tuberculous poets and writers may, instead, have hastened their tragic ends.

CHARLOTTE BRONTE

In the days of the Emersons and the New England school of authors, tuberculosis was four or five times as prevalent and as severe as it is today. Not only were there greater opportunities for infection, but knowledge concerning the prevention and control of the disease was lacking. A few generations ago the family that had not seen at least one or two deaths from tuberculosis among its members was a rarity. Sometimes, as in the case of that English literary family, the Brontës, the holocaust was complete.

When Mrs. Maria Branwell Brontë died in 1821 of what the local physicians pompously called "internal cancer," she left in the care of her eccentric Irish husband, the Rev. Patrick Brontë, née Brunty, six young children. In later years, three of the five girls were famous as the authors of rather remarkable novels. In them burned the flame of genius.

These strange children grew up on the bleak moorlands of Haworth in England. In 1824 the two older girls, Maria and Elizabeth, were enrolled in a school for the daughters of impecunious clergymen at Cowan's Bridge. There they were joined by the younger sisters, Charlotte and Emily; but in February of the following year, Maria went home, to die of tuberculosis in May. The other sisters were promptly removed from the harsh atmosphere of the moors, which was subsequently depicted so passionately by Charlotte in "Jane Eyre," but in one case the move was too late. In June the second sister, Elizabeth, became a victim of tuberculosis at the age of 11.

Undoubtedly the "internal cancer" of the mother had been in reality tuberculosis, with which she innocently infected one or more of her daughters, who in turn passed on the germ to others in the family. In 1836 the youngest of the sisters, Anne, a pupil at Miss Wooler's

ROBERT LOUIS STEVENSON—PERCY BYSSHE SHELLEY

School at Roe Head where Charlotte was then a teacher, began to show signs of a pulmonary disorder. Despite ensuing ill health, Anne lived for another twelve years and during that time wrote two novels and numerous poems, some of which are still fervently sung as hymns. Her two books, "Agnes Grey" and "The Tenant of Wildfell Hall," are generally rated as competent but are overshadowed by the more brilliant novels of Charlotte and Emily.

Charlotte was the only one of the Brontës who really got away from the bleak moors of Haworth, and she was the only one who was ever married. After spending several years in Brussels as a governess, she returned to England in 1844 to establish a school, which attracted no pupils, and to care for her brother, Branwell, who had wasted a promising life in dissipation, and look after her father, whose sight was failing. Added to these misfortunes was the depressing effect of a constant series of rejection notes from various publishers, to whom Charlotte had submitted a novel, "The Professor."

Finally, in 1847, one of the publishers, in politely returning "The Professor," offered to look at another of Charlotte's novels, an ambitious work entitled "Jane Eyre." It was accepted, was published in August and became an immediate success. About a year later the ne'er-do-well brother, Branwell, died in delirium tremens. The cause of his death was recorded as "chronic bronchitis marasmus." In the light of modern knowledge the demise of this 31 year old artist undoubtedly was due to tuberculosis.

Hardly had Branwell been buried than Emily began to fail in health, although she stubbornly refused medical aid. Emily's great novel, "Wuthering Heights," had been published soon after "Jane Eyre" but had not been received with equal acclaim. In December, Emily died of tuberculosis in her thirtieth year, despite the devoted nursing given by Charlotte, who had been forced to lay aside her new novel, "Shirley," in order to care for her two ailing sisters, Anne and Emily. The death of Anne occurred in 1849, before she had reached her thirtieth birthday.

For a few years, Charlotte Brontë was recognized in London as a prominent literary figure. In 1854 she accepted her third offer of marriage and was espoused to a young curate, Arthur Bell Nichols. Her health was precarious, and nine months later, as she was about to become a mother, she too succumbed to tuberculosis. Charlotte was then 37 years old and an author to whom Thackeray, Matthew Arnold, Harriet Martineau, and her future biographer, Mrs. Elizabeth C. Gaskell, were proud to pay tribute. Aside from "Jane Eyre" her greatest novel was "Villette," published in 1853.

All the Brontës, except possibly the father, who outlived them all, possessed a brilliance that was akin to genius. The novels are outstanding for their portrayals of vehemence, grief and passion, which is all the more remarkable in view of the fact that when these books were written none of the sisters was married.

At the summit of a forest-covered mountain in Samoa, overlooking the restless sea, is a tomb. On it is a bronze tablet proclaiming in Samoan that it is the tomb of Tusitala, The Writer of Tales. Another bronze is adorned with two verses in English, prepared by this famous writer of tales as his own epitaph.

1850 ROBERT LOUIS STEVENSON 1894

Under the wide and starry sky,
Dig the grave and let me lie.
Glad did I live and gladly die,
And I lay me down with a will.

This be the verse you grave for me;
Here he lies where he longed to be;
Home is the sailor, home from the sea,
And the hunter home from the hill.

Several generations of the Stevensons of Edinburgh had been distinguished as builders of lighthouses. The same career was planned for Robert Louis Stevenson, but he turned from it to law, and from law to literature, influenced, he said, by "natural growth, the coming of new friends, and the study of Walt Whitman."

From earliest childhood, Stevenson had been afflicted with ill health, communicated, perhaps, by his mother, who came from a strain of tuberculous clergymen named Balfour. In 1873 a severe attack of diphtheria so depleted his physical resources that a physician sent Stevenson to the Riviera to recover from nervous exhaustion and the threat of tuberculosis.

Practically all the remainder of Stevenson's life was a battle against this disease, a battle which ended in defeat, if death must be considered the conqueror, but in victory, if the production of a mass of exquisite literary works is the criterion of a successful life. Between 1875, when he was called to the bar, and 1882, when "Treasure Island," his first great popular success was published, Stevenson had written many essays and much verse. Later came his "Dr. Jekyll and Mr. Hyde," "Kidnapped," "Master of Ballantrae" and when he was 35 years of age the radiant "Child's Garden of Verse," dedicated to the faithful nurse of his childhood days.

In 1879 the illness of Mrs. Osbourne, whom Stevenson had met in Grez, France, brought him to California to see her, and in 1880 they were married. The next few years were spent in a vain quest for health, now on the Riviera, now at Bournemouth in England, now in the Alps and in 1877 at Saranac Lake in the Adirondacks, where for nearly a year Stevenson was a patient of Dr. Edward Livingston Trudeau, himself a victim of tuberculosis.

While living in San Francisco in 1880, Stevenson had read Herman *(Continued on page 275)*

INFECTIONS

By LOIS M. HALL

"I didn't think a little cut could be so dangerous," remarked Mary Jane's mother—but luckily she discovered in time the consequences of neglect.

DID YOU ever have an infected finger? Or perhaps you had a boil on the back of your neck, or even where it hurt to sit down. These are infections that in many cases have the same preventive measures and frequently the same curative ones.

Mary Jane Eilers had an infected right thumb that was a serious affair. On Saturday afternoon while roller skating she fell, bruised her elbows and knees and cut her right thumb. It was her elbow that hurt her most because she had struck her "crazy bone." She paid little attention to her other injuries. Nor did her mother take them seriously. Mary Jane was an active child and seemed always to be getting bumped or scratched, and nothing ever came of it. So the youngster wrapped her thumb in the somewhat grimy handkerchief she found in her pocket and continued her skating.

Sunday afternoon her thumb was swollen and red around the cut. It hurt whenever she moved her hand; so she stayed in the house and read instead of running out to play after dinner. The next morning when she couldn't use her hand to button her dress, her mother examined the wound and exclaimed, "Why Mary Jane, your hand shouldn't look like that! We'd better put some salve on it." Salve was the Eilers' standard remedy and was used for burns, cuts, blistered heels and chapped lips.

But salve seemed not to be the right treatment; for although Mary Jane went to school she didn't feel well. She didn't act like Mary Jane or any other healthy 10 year old. At recess she didn't go out with the rest of the children. When she stayed in her seat resting her head on her desk the teacher, Miss Gray, came back to ask her, "What's the matter, Mary Jane?"

"My head hurts." Mary Jane looked up. Of course her thumb hurt, too, but not so much as her head. She just felt sick all over. She almost forgot about her thumb.

"Maybe you would feel better if you went outdoors in the fresh air," suggested Miss Gray. Then she looked at the child more closely and added, "No, I think you had better lie down and see the nurse when she comes." Mary Jane's cheeks were flushed. Her forehead felt warmer than it should. Maybe she had a fever. "Do you have a cold? Did you feel all right when you left home this morning?" Mary Jane did not have a cold. No, she hadn't felt very well when she had gotten up, but she didn't want to stay away from school, for then their class would lose the star for perfect attendance, and every one would be angry with Mary Jane.

Miss Gray took the sick youngster down to the principal's office to rest until Miss Elkins, the school nurse, came. Miss Elkins took Mary Jane's temperature; it was 102 F. She looked in her throat; it was all right. Then she spied the sore thumb. "Goodness, child, when did you do this?" she asked. Mary Jane's whole hand was swollen. The thumb itself was an angry, unnatural red. There were red streaks up her forearm.

"Mary Jane will have to see a doctor right away," she told the principal. The child's mother was called, and the family doctor came to the school.

"Take her home immediately, and put her to bed," he ordered. Then he advised the mother to have Mary Jane soak the sore thumb continuously in a strong solution of epsom salt. "Make it just as warm as she can stand it. The

heat will improve the circulation and help overcome the infection. It has started now to go through her body, and if treatment is not started at once it may get into the blood."

Mrs. Eiler nursed Mary Jane as the doctor specified. She gave her orange juice, grape juice, clear broths, eggnog and milk drinks but no solid food until her temperature was normal. She kept her in bed. Miss Elkins showed Mrs. Eilers how to give Mary Jane a bath in bed without chilling the child or soiling the bed linen. She taught her how to make the bed and change the sheets with the child in bed.

Mary Jane slept most of the first two days, but after that she began to get restless. Mrs. Eilers read to her, and they played guessing games. Mary Jane couldn't use her hand at all. She had to keep it in the basin of epsom salt, and she did wish she could draw pictures or cut out paper dolls. Keeping her entertained taxed Mrs. Eilers' ingenuity. One day she bought a children's crossword puzzle book, and while the child supplied the answers, she wrote in the words. Then she got a small flower-pot with hyacinth bulbs that were just beginning to sprout. Mary Jane watched each morning to

"THESE MEASURES WILL USUALLY PREVENT INFECTION, BUT YOU NEED TO EXAMINE THE WOUND FREQUENTLY, AT LEAST TWICE A DAY. AND OF COURSE APPLY A FRESH BANDAGE EACH TIME. INFECTIONS ARE SERIOUS, AND SO IT IS MUCH BETTER TO PREVENT THEM THAN TO CURE THEM."

Ferdinand S. Hirsh

see whether the shoots were any taller than they had been the day before.

The doctor came each day. On Thursday he brought some instruments that he had Mrs. Eilers sterilize by boiling on the kitchen stove. He said that nothing must touch the wound without being very clean. He opened the infected part of the thumb, cleaned out the pus and covered the wound with sterile gauze from his bag. For future dressings the doctor suggested that they might buy sterile gauze from the drug store for a few cents; or Mrs. Eilers might make her own dressings. She could take strips of old sheets, tablecloths, handkerchiefs or any white material, wash them thoroughly and iron them with an almost scorching hot iron. "The heat helps to destroy germs," he explained.

As the doctor finished the bandaging he instructed Mrs. Eilers that Mary Jane should keep her thumb completely dry and not soak it any more. Both the child and her mother were glad, because it had been awkward to keep the basin of solution beside the bed.

"It is fortunate we began treating her when we did," the doctor told Mrs. Eilers. "In a day or two the infection would probably have gone into the blood stream. And blood stream infections are often fatal."

"I didn't think a little cut could be so serious," remarked the mother.

The doctor thought to himself, "That's the trouble. People don't think. And they don't believe in germs because they can't see them." But aloud his comment was, "Yes, a cut can be very serious. Sometimes the infection enters the bone, and the finger or hand has to be cut off. These things have to be treated early."

The next day the school nurse came back to see how Mary Jane was getting along. She gave Mrs. Eilers additional advice for building up her daughter's health to help improve her general health. She helped her plan a food budget, so that they could include more fresh vegetables in the family diet. She urged that Mary Jane should have a quart of milk a day in some form. Most of the child's health habits were good, but the nurse believed she should get more rest. "She is a growing girl and ought to have ten hours of sleep at night," insisted Miss Elkins. "If she has to be awake by 7:30 in the morning, she should be in bed by 9:30 at night." To this program Mrs. Eilers agreed she would adhere.

Miss Elkins had one more mission to perform for the Eilers. She wanted to teach them what steps they could take at home to prevent infection. Every child gets a number of cuts and scratches in his play. Miss Elkins believed that every mother should know how to administer simple first aid for such mishaps.

"If your child pricks her finger it is better for it to bleed," she told them. "The skin

always has germs on it. These are ready to rush in wherever there is an abrasion or opening of any sort. The blood washes them away. Afterward you must take other measures to clean the wound. Soap and water is the best cleanser. Any one of several preparations may then be applied. If you have iodine in the house, you may use that, if you wash it off afterward with alcohol alone. For small wounds, mercurochrome is satisfactory. Then when the wound is clean, keep it covered so that the dirt won't get into it." The doctor, Miss Elkins knew, had already told Mrs. Eilers how to prepare homemade bandages and dressings.

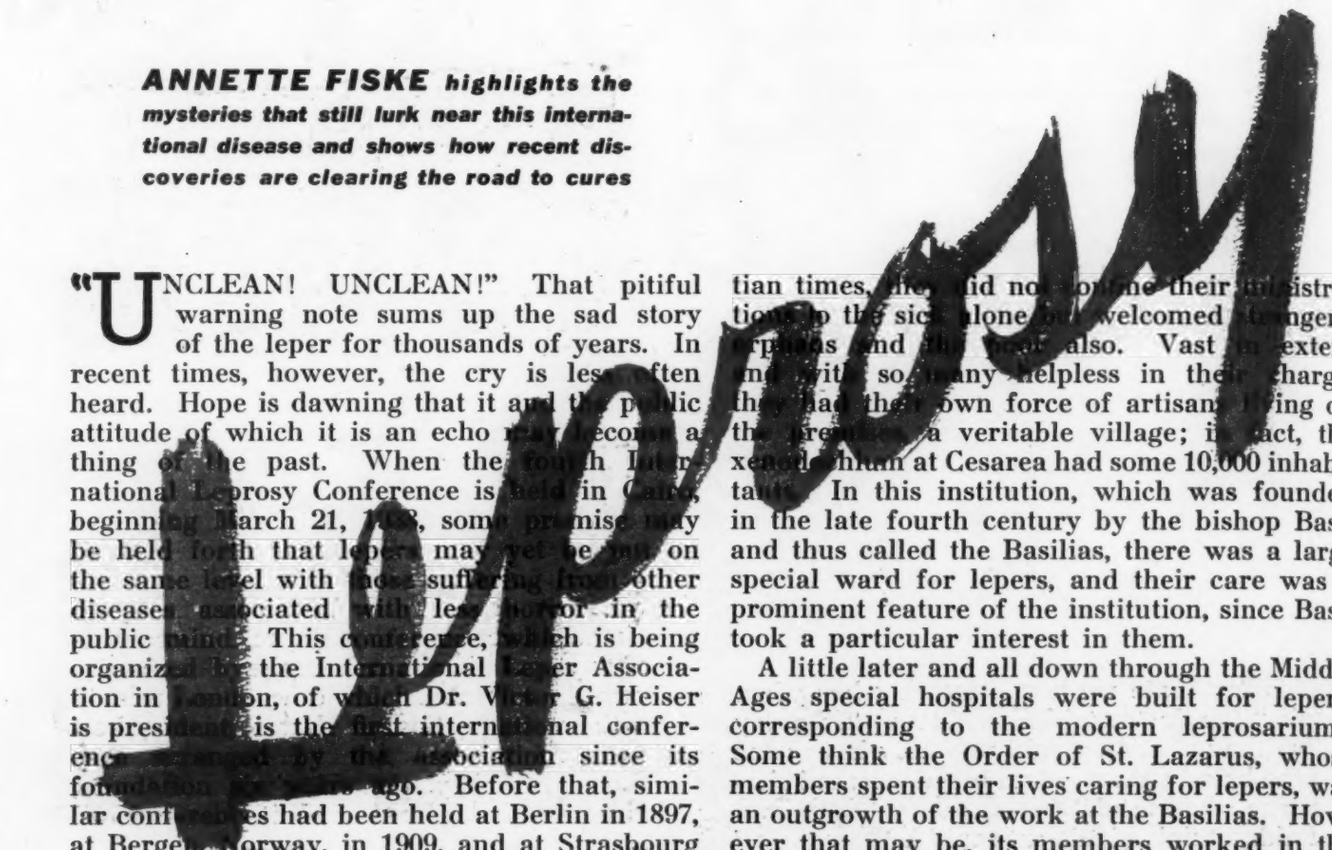
"These measures will usually prevent infection, but you need to examine the wound frequently, at least twice a day. And of course apply a fresh bandage each time," warned Miss Elkins. "If you notice any redness or swelling around the area, see a doctor right away. Infections are serious. It is much better to prevent them than to cure them."

Yes, infections are serious—and they are numerous. They hail from various sources, frequently so masked as to be utterly unsuspected.

In a broadcast on March 23, the American Medical Association and the National Broadcasting Company will present a dramatized program concerning the infections that man may get from his animal friends, who sometimes become his enemies. Cows, goats, rabbits, dogs, cats, parrots and horses may contribute to man's misfortunes as well as to his fortunes.

For further information, see page 260, and tune in to "Your Health" on Wednesday, March 23.

***ANNETTE FISKE** highlights the mysteries that still lurk near this international disease and shows how recent discoveries are clearing the road to cures*



"UNCLEAN! UNCLEAN!" That pitiful warning note sums up the sad story of the leper for thousands of years. In recent times, however, the cry is less often heard. Hope is dawning that it and the public attitude of which it is an echo may become a thing of the past. When the fourth International Leprosy Conference is held in Cairo, beginning March 21, 1938, some promise may be held forth that lepers may yet be put on the same level with those suffering from other diseases associated with less horror in the public mind. This conference, which is being organized by the International Leper Association in London, of which Dr. Victor G. Heiser is president, is the first international conference arranged by the association since its foundation [illegible] ago. Before that, similar conferences had been held at Berlin in 1897, at Bergen, Norway, in 1909, and at Strasbourg in Alsace-Lorraine in 1923. The Egyptian government is inviting all countries to send delegates, and doctors and any others especially interested will be welcomed.

No disease has had a longer history or has occupied a more prominent place in the public mind than leprosy. The symptoms of the disease as it existed in the valley of the Nile are described and treatment is prescribed in a papyrus of the fifteenth century B. C. It is mentioned in hieroglyphics of Assyria and Babylon. Its existence in India dates back at least 3,000 years, and it is described in Chinese writing of 2,000 years ago. The great Greek physician Hippocrates wrote of it in Greece, and it was carried to Italy, so historians say, by Pompey's army during the first century B. C. Pilgrims returning from the Holy Land brought it to England, and the crusaders scattered it far and wide as they came back.

The horror and fear inspired by the worst form of leprosy led at an early date to attempts in many places to isolate those suffering from the disease. Herodotus states that in his day, the Persians exiled lepers, and their shunning by the well is vouched for in the Bible. Moses followed the Egyptian custom and segregated those among the Jews who were lepers. Little if anything seems to have been done for their care. The first institutions to take them in appear to have been the xenodochia, religious inns which were hospitable to all unfortunates. As they were the first type of hospital in Christian times, they did not confine their administrations to the sick alone but welcomed strangers, orphans and the poor also. Vast in extent and with so many helpless in their charge, they had their own force of artisans living on the premises, a veritable village; in fact, the xenodochium at Cesarea had some 10,000 inhabitants. In this institution, which was founded in the late fourth century by the bishop Basil and thus called the Basilias, there was a large special ward for lepers, and their care was a prominent feature of the institution, since Basil took a particular interest in them.

A little later and all down through the Middle Ages special hospitals were built for lepers, corresponding to the modern leprosariums. Some think the Order of St. Lazarus, whose members spent their lives caring for lepers, was an outgrowth of the work at the Basilias. However that may be, its members worked in the leper hospitals, which were then known as lazarettos because they were dedicated to St. Lazarus, the patron saint of lepers. A curious rule of the order was that the grand master must be of noble family and a leper, a rule that remained in force until 1253, when it became apparent that all the lepers of noble birth had been killed by the infidels, and permission was gained from Pope Innocent IV to elect a nonleper to the office. After the crusades were over, the order became prosperous, especially when Clement IV decreed that every leper must be obliged to enter a lazaretto. But as time went on and leprosy became less common in the ranks it served, the order lost some of its typical characteristics, and at the time of the French Revolution it was suppressed.

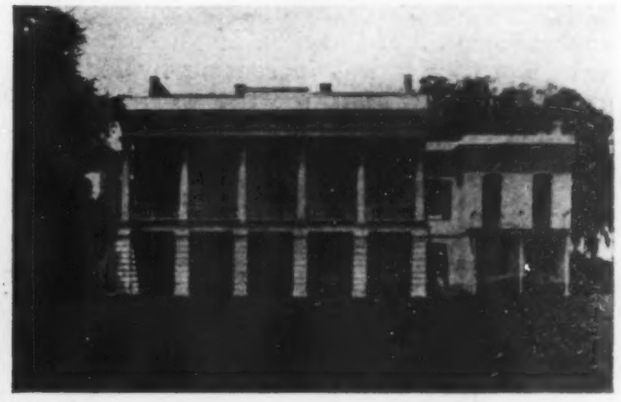
In the Middle Ages, leprosariums were established in France under chaplains. The lepers were dressed all alike and had rattles with which to warn others of their approach. By the reign of Louis VIII there were 2,000 such hospitals in France and five times as many in the rest of Europe, not counting those in Russia and Sweden. In England, lepers were isolated in leper houses, where they wore cowls and gray habits and were furnished with clappers. Always there has been a horror of lepers in people's minds; always they have had to give warning of their approach.

Leprosy is today common in Asia, Africa, South America, the West Indies and some parts of Europe. The number of lepers in the world

is conservatively estimated at from 2 to 3 million, but some authorities place the figure at between 5 and 10 million, and they are found chiefly in tropical and subtropical Asia and Africa. There are, however, cases even in the United States, lepers having been found in thirty-two states to the number of about a thousand. The New York health commissioner reports that about twenty-five are found each year in New York City. When the facts about leprosy were presented to Congress by the American Mission to Lepers, $1,000,000 was appropriated to establish and maintain a National Leper Hospital. It is located on a 400 acre tract at Carville, La., and is a model institution. It has about 350 patients, of whom 10 per cent are discharged each year as symptom free.

Climate seems to be one of the determining factors in its occurrence, for leprosy is most prevalent in hot, damp climates, humidity seeming to favor the survival and the transmission of the bacillus that causes the disease.

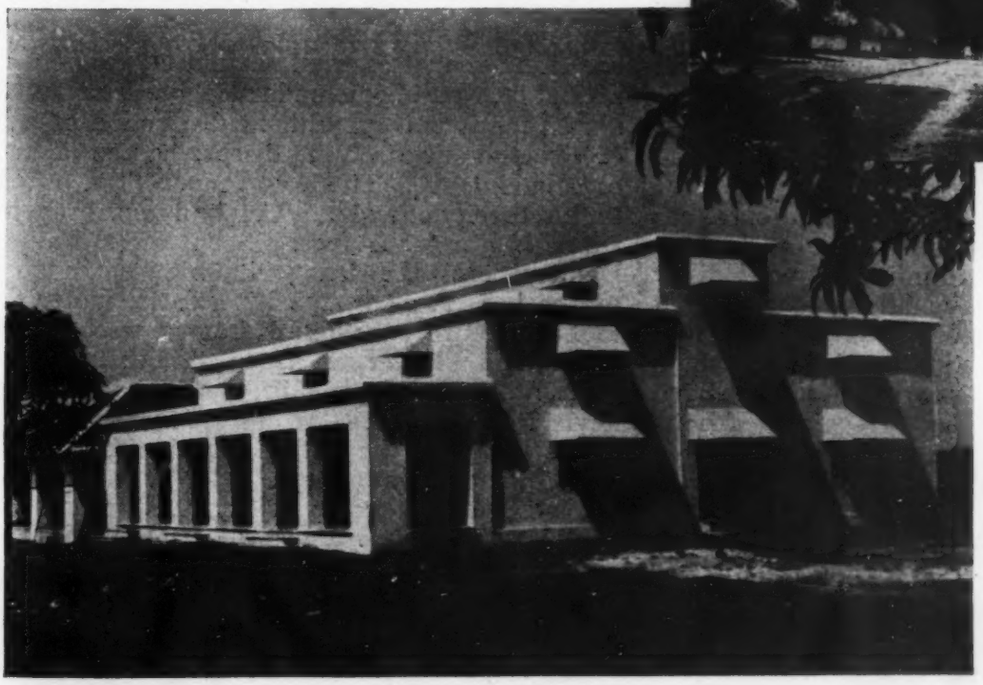
DORMITORY FOR GIRLS AT THE CULION COLONY IN THE PHILIPPINES.



ADMINISTRATION BUILDING OF THE LEPROSARIUM AT CARVILLE, LA.

CHAULMOOGRA FRUIT, FROM WHICH IS DERIVED OIL FOR TREATMENT.

AN AFRICAN LEPER SETTLEMENT WHICH SHOWS A TYPICAL COLONY BUILT UP BY THE LEPERS THEMSELVES.



A RATHER NEW ESTABLISHMENT IS THIS LEPROSY HOSPITAL IN CENTRAL INDIA, BUILT BY DOONGAJI IN 1934.

But though the cause is known, the exact manner in which infection is conveyed is not as yet clear. Apparently long, close contact is involved. It has been found that 40 per cent of traced infections were caused by living in the same house with a leper and 30 per cent by sleeping with one; but the source cannot be traced in most cases. Children and young adults are most susceptible. In fact, many think infection, in the majority of cases anyway, takes place in the early years, however late it may be manifest. Infection of adults is of rare occurrence. Certain it is that casual association involves far less danger than was once thought.

There seems to be some difference of opinion as to the increase or decrease of leprosy. Dr. O. E. Denny, director of the United States Marine Hospital at Carville, La., declared a few years ago that it was increasing by leaps and bounds in many parts of the world but then admitted the statement needed qualifying. For though the number of known cases was increasing in many countries, the increase was doubtless generally due to the more frequent recognition of the disease by doctors. The statistics indicated an increase in India from 300,000 cases fifty years ago to from 1 to 2 million cases in 1933; but whether this was a real increase or whether, as is more probable, it was due to better diagnosis was uncertain. In South America, however, the authorities had been much concerned over the increase. In Argentina, for example, where there had been almost no cases twenty-five years earlier, there seemed to be a real increase in 1933. A possible explanation of this is based on the fact that leprosy is to some extent a disease of civilization and tends to spread as commerce grows between remote villages and larger towns. Perhaps as the Indian inhabitants came into contact with the large towns in which a few cases of leprosy existed, they met the disease for the first time and came down with it. Also, in some small islands in the Pacific, leprosy has been increasing rather rapidly during the last ten years. Others, however, reflect a far more cheerful condition.

Segregation has been carried to extremes because of the lack of knowledge as to how the disease is spread. Not until 1848 was leprosy studied seriously; and for many years after that little progress was made. It is now known that early cases are not infectious, and if early diagnosis is made, a cure can be effected. Such patients do not need to be segregated. If however they go untreated, the disease develops into the virulent stage, when it is infectious. In one type the nerves are affected; the contagion passes along them toward the spinal cord, although it never enters either the cord or the brain, and the victim may live out the ordinary length of life. In the other type the skin is affected, and there is great disfigurement. The latter type generally ends in death in about eight years; but those with the neural type may live on, and after the disease has burnt itself out, danger of contagion is over. So these patients, again, do not need to be segregated.

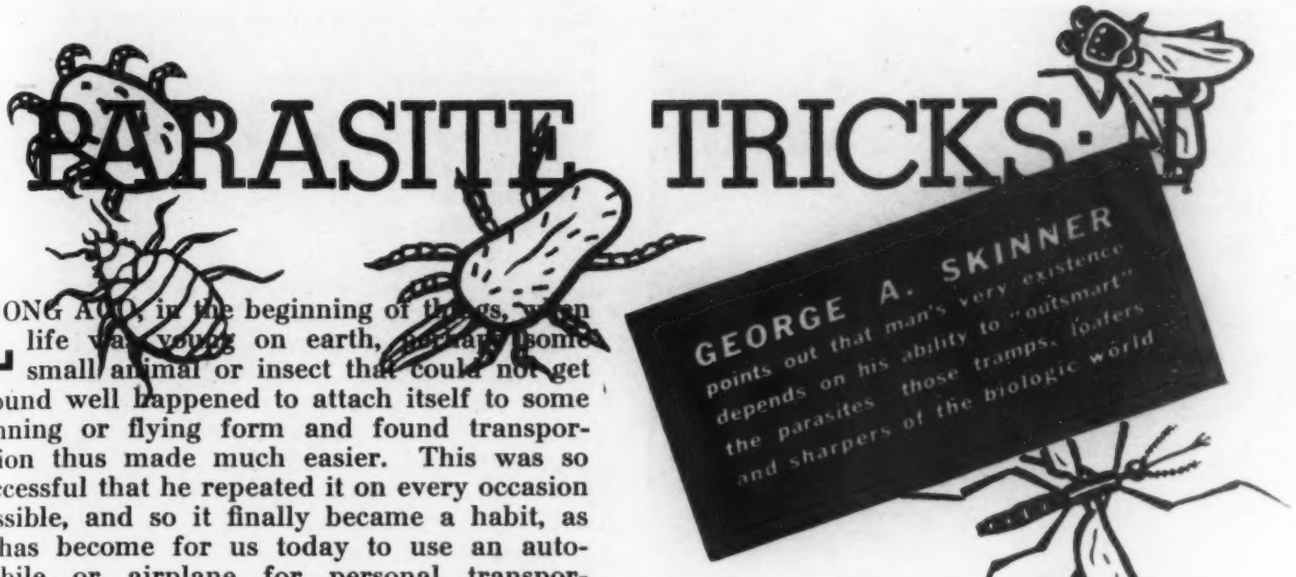
To segregate only those who are a source of danger to the community is to make the leper's lot a happier one and to save much money. The United States deserves credit for being the first country to parole leprosy patients, as they did at the Honolulu station. In South Africa, one third of the isolated lepers in institutions were released a few years ago because they had lost the power to infect. And since the policy was introduced of segregating lepers only during the infective stage, the number of lepers in Norway has been reduced to 5 per cent of the number known in 1856; and Sweden and Iceland have had a similar experience. What the effect of segregation has been in suppressing the disease is still uncertain, for such isolation can never be complete, and it is especially difficult to make it so under the conditions that prevail in most countries where leprosy is prevalent. In fact, in such poor tropical countries as Hawaii and the Philippines, where living conditions were bad and there was no effective treatment, the effects of segregation were not so good, since it led to the hiding of early cases and so kept foci of infection alive.

In a sense the turn in the treatment of lepers came when Father Damien volunteered and went to live in 1874 in the colony on Molokai, whither lepers were deported from the other Hawaiian islands. He knew nothing scientifically of the disease; he introduced no treatment, but he associated with the lepers and treated them as human beings.

Living conditions were almost unbearable when he arrived at the island. Living in frail little huts covered with *ki* or sugar cane leaves, the lepers spent their time playing cards, dancing native dances and drinking fermented ki-root beer and homemade alcohol. They lived most promiscuously, without distinction of age or sex, the stages of the disease or the degree of acquaintance. There was much filth, owing to the scarcity of water, which had to be brought from a great distance. Soon after Father Damien's arrival a strong wind blew down most of the houses. Through his efforts, materials to build more substantial frames were introduced, and a better era began. When he heard of a natural reservoir in the hills that was never known to run dry and had pipes laid to connect it with the village, another important step forward was taken.

Perhaps the sacrifice of his life through his contraction of leprosy was essential to effective emphasis on his devoted service to lepers and what he accomplished for the amelioration of their condition. One wishes, however, that he might also have taught *(Continued on page 284)*

PARASITE TRICKS


GEORGE A. SKINNER
points out that man's very existence
depends on his ability to "outsmart"
the parasites—those tramps, loafers
and sharpers of the biologic world

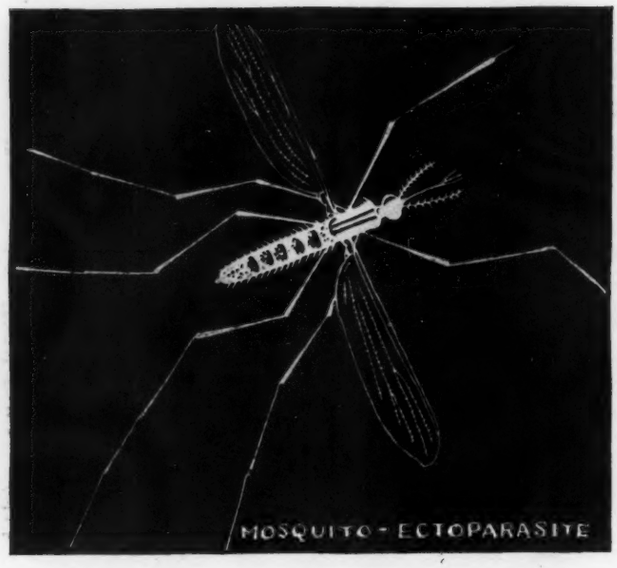
LONG AGO, in the beginning of things, when life was young on earth, perhaps some small animal or insect that could not get around well happened to attach itself to some running or flying form and found transportation thus made much easier. This was so successful that he repeated it on every occasion possible, and so it finally became a habit, as it has become for us today to use an automobile or airplane for personal transportation. Maybe the big fellow resented the intrusion, and as soon as his slow consciousness informed him of the intruder he promptly destroyed it. More likely the passenger remained unnoticed and finally became a regular inhabitant of the larger animal. In this process the visitor may have found also that on the surface of the body of his "host" there was an abundant and easily obtained food supply. This may have been from the waste matter of the body surface, such as scales, hairs or excretions, or it may have been that the "guest" found it easy to penetrate the outer covering of the host and extract its blood. Possibly the guest had to be a bit careful about the latter process, for piercing the hide might have caused a reaction on the part of the host, and this might have resulted in the destruction of the guest. In some such way a number of life forms became dependent on other and better developed ones, and these dependents are called "parasites." Whatever was the beginning of parasitism, it certainly took place eons of years ago, for parasitism is apparently almost as old as animal life.

In biology a parasite is an animal or a plant that lives in, on or with some other living thing and obtains from it food, shelter or some other advantage. In other words, parasites are the tramps, loafers and sharpers of the biologic world. In most instances we could get along most happily without them, though a few seem to serve a useful purpose in the scheme of nature. But they do play an important part in human life and are among the most active agents in spreading diseases. They are therefore of exceptional interest to those of us who are immediately concerned with the preservation of human life and health.

The study of parasites is a most fascinating study. Often the life history is involved and hard to follow. This is so, even after it has all been worked out, and one can only admire the patience, perseverance and skill that have been displayed by many scientists in tracing these intricate and involved life cycles. There are still some phases of parasitic life that have not been fully traced, and following the average mystery story is child's play compared to following the life story of some parasites. But it has something of the same fascination that a good mystery story has, and the solution is often even more surprising.

In addition, it is an exceedingly valuable pastime in that it leads to a knowledge of our relationship to parasites, and this knowledge will often be the means of protecting us from them, thus prolonging human life and making it much more comfortable. Parasitism bears on the life of every human being on earth, and it often also affects those animals on which man depends for food and assistance in many ways. Sometimes the margin of safety between plenty and want depends on man's ability to control parasites that will take his food supply if he is not smart enough to stop them. Indeed his ability to continue existence on the earth is by no means a certainty, as the insects are in many ways much better prepared to survive here than he is. If he can't "outsmart" them the chances for his joining the mastodon and dinosaur are good.

Generally a reasonably accurate estimate of the length of time that parasites have lived on certain hosts can be determined by the way they react to each other. If there seems to be little disturbance, and the host has little or no inconvenience from the parasite, or "guest," it may safely be concluded that they have lived together for untold centuries and have become used to each other, or "adjusted." Parasites must damage their hosts as little as possible, or they will get a boomerang effect and damage themselves also. If they are so greedy that they remove too much blood the host becomes weak and dies, which either kills the parasite



or throws him out in the cold world again, and he must find a new home. If the excretions of the parasite are poison to the host, the host may become too ill to find food, or such a violent reaction will occur that the parasite will be expelled. Either of these conditions is as unfavorable to the parasite as to the host.

Nearly all parasites cause a more or less violent reaction when they first inhabit a new host, and when we see such a reaction occurring, we know that such parasitism is comparatively recent and that host and guest have not yet become adjusted. Of course there may be and usually are annoyances from parasitism, but these are not serious enough to destroy the host or interfere materially with its normal life. Fleas are a source of irritation and annoyance; but if they are not infected with some organism or parasite that they introduce into their hosts, their presence will never cause much more than annoyance.

Parasites then are not necessarily destructive to the host but may live with it for its entire life span. On the other hand, parasites may be exceedingly destructive to human and animal life, and practically every living thing has some destructive parasitic enemy. It is this destructive parasitism that helps keep a check on the enormous numbers of insects that are constantly produced and without which human life would be impossible. This destructive or active parasitism helps to maintain the "balance of nature" and is not concerned with the preservation of the host except as it may serve for food for a developing generation. Entomologists have learned to take advantage of this form of parasitism and use it extensively in the control of insect pests.

Passive parasitic life of all kinds is a degenerate existence, and such forms as depend on others for their livelihood tend to degenerate physically. Thus we find that some of them have lost their legs or that the legs are only rudimentary. Others that could once fly, having now no use for wings have only tiny stumps where the wings formerly were. While many insects have compound eyes, that is, those of many lenses, sometimes numbering thousands, parasitic forms often have left only simple eyes, and some have lost them entirely. The digestive tract in others is rudimentary or wanting, since they live in a medium of digested food, and all they have to do is to absorb what they need through their skin.

Curious changes have taken place in many parasites to protect them in the environment in which they live, or they could not long survive. Many parasites reach the intestinal tract through the mouth and stomach of the host. Ordinarily the acid of the stomach would destroy them, but they have little overcoats that are insoluble in acid; and so they pass safely through to the intestines, where the covering is digested off in the alkali, which does not harm the parasites but sets them free to continue their life cycle. Others have suckers or hooks on the head, by which they secure themselves firmly to the intestinal lining, and even the violent movements that would otherwise expel them have no effect. Usually a tough external coat protects them from the grinding or scouring action of passing materials. In some instances remarkable cutting tools are placed on the head, and the parasite can penetrate the unbroken skin quickly and so gain access to the blood or other body fluids and reach its destination by active boring or by floating to it.

In all these changes there appears never to be any damage or interference with the parasite's reproductive functions. Indeed it often seems that the more nearly all other functions are suspended, the greater is the ability to reproduce their kind. While in most parasites both sexes are necessary to continue the species, there are numerous modifications of reproduction, sometimes rendering the male entirely unnecessary. In most cases the male disappears almost immediately after the fertilization of the female has taken place. In certain parasitic worms both male and female sex organs are present in each segment or division, and thousands of eggs may be given off each day by such a well developed worm. Where self fertilization takes place in this manner, the double sexed parasites are known as hermaphrodites. Such bisexual forms are not uncommon in primitive life.

There are also many examples in the insect world of reproduction without fertilization at all. Sometimes this occurs only as an emergency protection when the males have all been destroyed or, as sometimes happens, when all the eggs produce only females. In some cases unfertilized eggs will produce only females; in other instances only males. In some forms this is the regular thing, and females come only

from fertilized eggs, while the males arise from the unfertilized eggs. Sometimes there are no males at all. Instances are known in which certain races produce only males, others only females from unfertilized eggs. One variety has been described in which virgin females give rise only to males, while the fertilized female produces both sexes. At times this method of reproduction appears only in cycles, and one generation will be all females, and the next will contain both sexes. This seems to be a protective or emergency device to provide for the continuation of the race and is called parthenogenesis, or virgin reproduction.

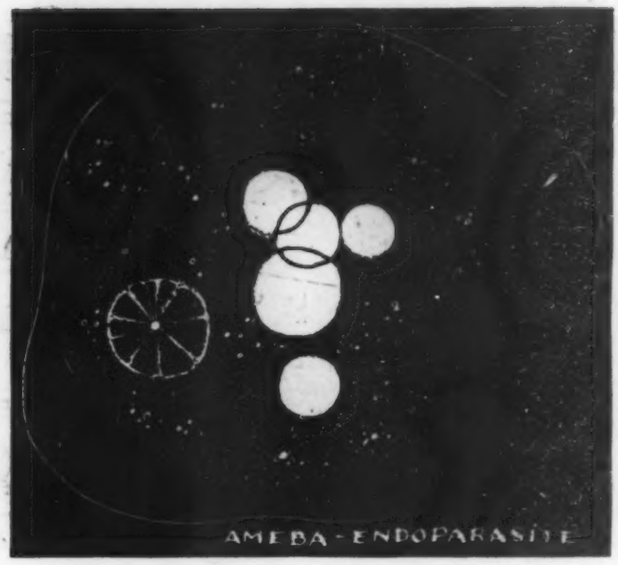
A still more curious provision of continuing the species is known in which the immature forms reproduce without fertilization (parthenogenetically), and this is called pedogenesis, or child reproduction. Sometimes there will be two or more generations reproduced from immature forms; then a complete cycle will take place, and the normal males and females will again be reproduced. One fly is known that produces only four or five eggs. Each egg hatches into a larva, and this divides into from seven to thirty similar larvae. Each one of these in turn reproduces, and this continues for several generations; then a generation will pupate, or become inactive, and the normal reproduction will return.

One other form of reproduction is known in which many embryos are produced from a single egg, called polyembryony, or many embryos. Such eggs appear to absorb nutrition from the surroundings, and the nucleus divides into many smaller pieces varying from 160 to 1,500, and each one of these fragments develops into an embryo.

Another most interesting phenomenon occurs in some parasites and insects, whereby the eggs may be developed into either sex by proper feeding. It is best known among the bees, where workers may be reproduced as required. These workers are females with undeveloped sex organs; drones are the fully developed males, and queens, the fully developed females. This ability to influence sex seems to be due to a substance similar to one known as a hormone, a gland product that works most profound changes on the body.

With such elaborate and efficient methods of reproduction it is not difficult to imagine that many problems have arisen in connection with parasitic life and its relation to human disease. The methods that nature uses or the tricks that parasites have developed in maintaining themselves and gaining entrance to their hosts are many and varied.

Some of the more general qualities of parasitism have been presented, and it is my purpose in this study to consider many of the more interesting and important tricks that the parasites play on us for their own benefit. We may



not be much damaged by their presence, but we have few records of any benefits from them; hence it is important to consider means of defense against them, since many are nuisances, others annoying, some produce more or less marked symptoms, and some may produce death to the human family. Among such parasites we will find ectoparasites, those which live on the surface of the body, and endoparasites, those which live within the body cavities or in the tissues. Some live on the body because it is convenient and handy but are capable of living elsewhere. These are known as occasional facultative parasites. Others cannot exist apart from the host to which they have become accustomed and are permanent or obligate parasites. Some use us merely as a convenient stopping place on their way to a permanent home, and we become the intermediate hosts. Some will pass through several other insects or animals before they take up a permanent residence in or on the human form, which makes us the definitive or final host.

With thousands of parasites always waiting to live with us and from us it must be apparent that the well known phrase "the struggle for existence" is no mere fancy slogan but a grim fact, and the more we know about the life and habits of the parasites, the greater will be our chance for a comfortable and continued existence.

Who will rule the earth—man or the parasites? Science is constantly devising new means whereby man, the unwilling host, may protect himself from those unwelcome guests, the parasites. How this is being done will be told in future articles in this series. And on Wednesday, March 23, the American Medical Association and the National Broadcasting Company will broadcast a message on this subject. Listen in, and learn the dangers of "Catching Disease from Animals." For further information, see page 260.

A DAINTY JAPANESE MAID PREPARED THE SUKIYAKI ON A SMALL CHARCOAL STOVE.

Food with a Foreign Accent

SECRETLY EVERY WOMAN feels it is a feather in her cap if her family are hearty eaters, no matter how she may complain of it in public. This fact suggests that she sets a good table and that they are of sturdy stock. But setting a good table can be a great strain on the budget, unless one plans the meals carefully, with due regard to monetary as well as dietetic values.

This may sound as if I'm working up to a suggestion for dull economy meals, but I'm not. Like so many others, I have, through experience, become wary. Too many of us have experimented with recommended economy meals, only to discover that they require too much time, effort and fuel, too many dishes and dabs of this and that to be worth their salt. And we avowedly believe that meals that require all day in the kitchen to save a few pennies cost too much!

But it is possible to prepare delicious meals with small effort and cost that will be an adventure in eating. People in other countries do it and become at the same time famous for their culinary art. If they can do it, so can we—by the simple expedient of borrowing some of their cherished recipes.

If entertaining guests at dinner is one of the things you like best but find hardest to do because of a budget that won't often stretch to cover filet mignon and artichokes, you are going to be particularly interested in these borrowed recipes. For while you might hesitate to ask guests to join you in beef stew, you should have no qualms at all in suggesting that they drop in for a sukiyaki dinner, which isn't so different in cost as you might think!

I discovered sukiyaki in Honolulu, where the population is nearly as Japanese as in Japan itself, nearly one third of the population being the kimona-wearing variety. Their immaculate and attractive tea gardens are popular among all the many races and nationalities that make up Honolulu's variegated population, and sukiyaki is probably the most popular Japanese food served there. It is a slightly Americanized version due to a lack of some of the Oriental foods such as leeks and bean curd, but this works out as well for the American housewife as for the Hawaiian Japanese.

A dainty Japanese maid, squatting on a pillow, even as all the guests, prepared the meal on a small charcoal stove beside our low dining table. First she served clam broth in bright-colored covered lacquer bowls. While we were enjoying the soup, she was preparing the sukiyaki, and its delectable fragrance gave a promise which was fulfilled. She made it this way:

Sukiyaki

Brown thinly sliced and chopped beef, chopped green onions, tops and all, watercress, bamboo shoots (you can buy these canned) in butter in a large iron skillet or dutch oven. Moisten this mixture with soup stock or water (the liquid should cover about two-thirds of the stew), and simmer from 15 to 20 minutes. Flavor to taste with shoya, or soy-bean, sauce, which is the Japanese salt, and serve with a bowl of boiled rice. Sometimes either raw or canned tomatoes are added. Proportions for everything are elastic, but similar to a good meat stew.

Easy? It's just as delicious as it is easy, too. And the almost nonexistent number of kettles required for its manufacture is a joy forever! With the clam broth and the sukiyaki, little else is needed except a dessert of fresh fruit and, of course, tea, which is a national institution.

Just a suggestion in passing—for a public which has been meat-loafed and Harvard-beeted ad infinite boredom at church suppers and other community meals where the per plate cost must be trimmed to the bone, a sukiyaki dinner complete with atmosphere would be a more than welcome change. It takes little, too, to add atmosphere to a Japanese meal—waitresses in colorful kimonos, Japanese lanterns and a Japanese screen and print or two. Of course, chopsticks would add much hilarity, and very inexpensive wooden ones may be bought in many of our small variety or gift shops.

While we are in the Orient—and whose attention isn't nowadays?—a Chinese dinner is in order. To me there is nothing more delicious than real Chinese food, and to taste is to believe. The subtlety of its flavorings, the careful and scientific preparation, the proportion and variety of ingredients combine to make Chinese cookery a high art.

Chop suey is considered all over the world, except in China, where it is almost unknown, as being typically Chinese. However, it was invented by a Chinese cook and follows the principles of Chinese cookery in its preparation and ingredients, well deserving its popularity.

Since most Chinese recipes specify unusual and often unavailable ingredients and the use of complicated sauces and gravies, they are a bit out of the sphere of the average cook. Chop suey, on the other hand, is an easily prepared and a delicious food, Chinese in character.

Shiu Wong Chan, in "The Chinese Cook Book" (published by Frederick A. Stokes Company), reveals that the amount of meat to be used in a Chinese dish, in accordance with the hygienic law of Confucius, is about one-third that of the vegetables. He also states that the meat should be the same size and shape as the vegetables and should be uniform. It may be cut into dice, bars or fragments. He does chop suey the high honor of including it in his book, although he says that the dish is unknown in China. The following recipe is his:

Chicken Chop Suey

(Recipe serves 6)

1 chicken, cut into fragments	2 cupfuls bamboo shoots
2 cupfuls water chestnuts	2 cupfuls celery cut into pieces
2 cupfuls mushrooms	Soy sauce

Put water chestnuts, mushrooms, bamboo shoots and celery into a hot pan containing oil. Fry 2 minutes. Add a small amount of water, and cook 15 minutes. Put chicken into frying pan containing oil, and fry for 5 minutes. Add vegetables, and mix well. Add chicken stock or water to cover, and cook 5 minutes. Add Chinese sauce, and stir. Remove from stove at once. Serve with boiled rice.

Chop suey, served over fried Chinese noodles rather than rice, becomes chicken chow mein and is particularly good because of the crispness of the noodles. Pork may be used rather than chicken if desired, and sometimes a cupful of sliced onions is used in the Americanized version of this American dish. Salted almonds are sometimes used, either with, or in substitution for, the chestnuts.

Another country that would produce a popular meal for either home or community is Germany. This country is noted as much for the gaiety that surrounds mealtime as for the sub-

By
HARRIET ACHESON KOCH

SUBTLE FLAVORING, CAREFUL PREPARATION AND THE VARIETY OF INGREDIENTS COMBINE TO MAKE CHINESE COOKERY A HIGH ART.

stantial, healthful fare. One need not go across the water to find typical and delicious German meals. Many famous restaurants and German communities in this country, especially in the East, keep alive the tradition of good food for which they have always been justly famous. There are certain foods which are as typically German as plump fräulein herself, and without which no German meal would be quite complete. Who, for instance, would plan a typical one without including sauerkraut? And what community organization or school banquet, as well as homemaker, couldn't get a big hand and make money on the following meal?

Spareribs and Sauerkraut
Mashed Potatoes Brown Gravy
Apple Salad
Cheese Pie

While crackers and cheese would be a delightful finishing touch to this easy-to-prepare meal, and no work at all, thereby proving popular on especially busy days, the cheese pie is so utterly delicious that it is worth the bit of effort required to make it. This is the way it is made, and it takes but little time:

Cheese Pie

2 cupfuls cottage cheese (soft and creamy)
2 tablespoonfuls granulated gelatin
½ cupful cold water
½ teaspoonful salt
2 egg yolks
2 tablespoonfuls sugar
2 egg whites
½ cupful sugar
Zwieback crumb crust
Juice and grated rind of 1 large lemon

Put cheese through sieve. Soften gelatin in cold water, and add gelatin and salt to cheese. Add lemon juice and rind. Add beaten egg yolks and 2 tablespoonfuls sugar. Beat egg whites until stiff but not dry; gradually beat in ½ cupful sugar. Fold egg whites into cheese mixture. Pour filling into prepared crust, and cover the top with reserved crumbs. Cover with waxed paper or an inverted cake pan to prevent drying out. Chill for several hours in refrigerator. Serve very cold with a garnish of sweetened and flavored whipped cream.

This recipe makes a 9 inch pie.

Zwieback Crumb Crust

2 cupfuls fine Zwieback crumbs
⅓ cupful sugar
½ teaspoonful cinnamon
¼ teaspoonful salt
½ cupful melted butter

Mix crumbs with sugar, cinnamon and salt. Add melted butter, and stir until crumbs are thoroughly coated. Reserve about one-third for top of pie. Butter a deep pie pan lightly, and press the prepared crumbs rather firmly over bottom and sides of pan, to form a crust. If possible, chill crust in the pan before pouring in cheese filling. (A graham cracker crust may be substituted for the zwieback crust, if desired.)

There is a trick to cooking both mashed potatoes and sauerkraut so they are completely tasty. And, like the little girl with the little curl, unless they are good they are horrid. The

SAUERKRAUT IS TYPICALLY GERMAN.

trick for mashed potatoes is to mash them firmly and completely, so there are no lumps in the potato, before adding the milk and butter; then beat them until they are white as a lily, fluffy as cotton and smooth as custard. The trick to sauerkraut is proper seasoning and correct cooking time, which is only *until* it is tender and no more. Try this method:

Sauerkraut with Apples

(Recipe serves 4 to 6)

1 quart sauerkraut
2 apples
4 tablespoonfuls pork fat

Pare and chop apples. Add to sauerkraut, and mix well. Add pork fat. Cover, and cook briskly until the sauerkraut and apples are tender. Serve at once.

Music and laughter are to be served with each course; it's part and parcel of the meal. For a community or party meal, to copy several popular German restaurants, a chorus of men singers, singing stirring old tunes, would make a great hit. Perhaps an accordianist would be available to wander about among the diners playing request numbers while the chorus gets its share of the spareribs and sauerkraut. Judging from the number of accordianists appearing among the "amateurs" there must certainly be at least one in every community!

One more German food—an humble one but one of my favorites from childhood—is a grand one from the standpoint of both diner and cook. As a supper dish I say it can't be improved on, and this is how it's done:

German Potato Salad

(Recipe serves 6)

¼ pound bacon, chopped
1 tablespoonful vinegar
1 small onion
4 to 6 cold boiled potatoes, chopped
1 cupful coarsely shredded lettuce

Fry bacon slowly until crisp. Remove from fat. (It may be necessary to pour off some of the bacon fat after frying the bacon. Four tablespoonfuls of fat would be ample.) Add vinegar to bacon fat. Add potatoes and onion, and cook until the potatoes are hot through, but not browned. Add bacon and lettuce, and mix lightly. Serve hot.

In a trip around the globe searching for delicious foods at low cost it would be folly to skip France, long famous as a gourmet's haven and for its thrifty housewives. The pot-au-feu (stock pot) is as much of a national institution in France as tea drinking is in England, and the French peasant's principal meat dish is the meat which has been used to make the meat soup. Soufflés, subtle sauces and egg and cheese dishes have combined with soups to place French cookery in its enviable high position. A French meal may at first thought sound a bit tricky, but the following menu is not only easy to prepare but an adventure in eating on a cold winter's night. The meal requires a bit of time to prepare but very little effort, since most of it comes out of the same pot.

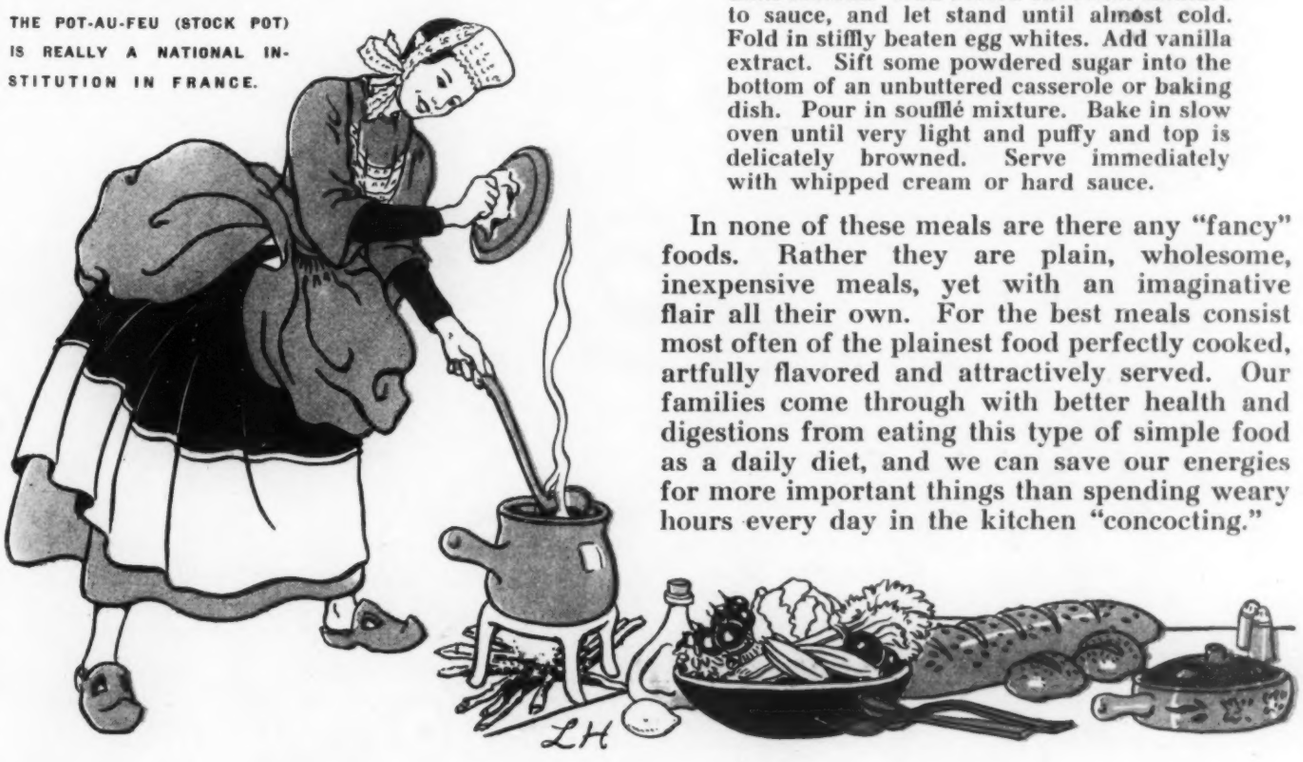
Bouillon
Boiled Beef with Vegetables
French Bread Tossed Green Salad
Chocolate Soufflé

The bouillon, beef and vegetables all come from the pot-au-feu, prepared in this way:

Pot-au-Feu

Put 2 pounds of beef and 1 pound of beef bones to boil in 3 quarts of water. Simmer gently for as many hours as possible, the longer the better. Remove scum and fat which rises to the surface. Strain; return the meat to the meat broth. Add sliced vegetables (carrots, turnips, onions, celery and others, as for vegetable soup) and salt. Simmer until vegetables are tender. Remove the soup-meat from the saucepan, and put on a hot platter surrounded by the vegetables cooked in the stock. Pour a few tablespoonfuls of the stock over the meat. Serve with horseradish or other meat sauce, and strain before serving.

THE POT-AU-FEU (STOCK POT) IS REALLY A NATIONAL INSTITUTION IN FRANCE.



Another delicious use for the bouillon is in French onion soup, which is not only the ace but the king and queen, as well, of soups. It would be especially good for luncheon the following day and no trouble for the cook. A cool salad, perhaps of fruit, served with Melba toast or a hard roll would just about round out a satisfactory luncheon. Because most French cooks cook with art instead of recipes, also perhaps with what is at hand, procuring exact proportions is not always easy. But if you use these proportions you will be safe and delighted.

French Onion Soup

1 pound onions	6 cupfuls soup stock
Grated Parmesan cheese	French bread

Brown the sliced onions in fat until light yellow in color. Add to the soup stock, and cook until onions are tender. Season with salt and pepper to taste. Toast rounds of French bread in oven. Pour soup over toast. Sprinkle with grated cheese.

It takes a light hand to turn out a soufflé, so esthetic thoughts are now in order:

Chocolate Soufflé

(Recipe serves 6)

TEMPERATURE: 325 F.	TIME: about 45 min.
2 tablespoonfuls butter	2 squares (2 oz.) chocolate
2 tablespoonfuls flour	3 egg yolks
¾ cupful milk	3 egg whites
½ cupful sugar	½ teaspoonful vanilla extract

Melt butter; add flour, and stir until smooth. Add cold milk. Stir and cook until sauce is thick and smooth. Melt chocolate over warm, not hot, water; add sugar and beaten egg yolks. Stir and cook until smooth. Add cooled chocolate mixture to sauce, and let stand until almost cold. Fold in stiffly beaten egg whites. Add vanilla extract. Sift some powdered sugar into the bottom of an unbuttered casserole or baking dish. Pour in soufflé mixture. Bake in slow oven until very light and puffy and top is delicately browned. Serve immediately with whipped cream or hard sauce.

In none of these meals are there any "fancy" foods. Rather they are plain, wholesome, inexpensive meals, yet with an imaginative flair all their own. For the best meals consist most often of the plainest food perfectly cooked, artfully flavored and attractively served. Our families come through with better health and digestions from eating this type of simple food as a daily diet, and we can save our energies for more important things than spending weary hours every day in the kitchen "concocting."

The Story of Human Energies

Acme

II. FATIGUE and REST

The long pull uphill is twice as steep as the quick slide going down

BY JOSEPH JASTROW

IN THE power plant that runs body and mind, there is a fourfold aspect of human activity: The chemical man directs the vital processes. These support the energetic man of muscle. The emotional man feels the urges, appetites and desires. The intellectual man directs them.

Vital man breathes, pulsates, secretes, tire lessly; it is the nervous system, operating muscle and mind, that becomes tired and needs rest. Performance is subject to the energy

cycle with its three phases of energizing, fatigue and rest. The law of energy is that to be efficiently active part of the time, one must be inactive the rest. The most complete rest is sleep, an unconscious state. There is a sleep mechanism in the primary nervous system—its nature unknown, its necessity unquestioned—which makes possible the restitution of energy; the budget is balanced daily. The more complex the organism, the more it is subject to fatigue and dependent on rest. So integral a part of life is sleep that a man of 70 has spent twenty years asleep.

The menace of fatigue appears in neurasthenia, which is a fatigue neurosis. When the energy system is disordered, every function of body and mind is affected; none can do its duty properly. The symptoms center about intense fears, depression and prostration, making every effort a pang. Neurasthenic case histories show capable men and women seriously incapacitated for long periods; their recovery is slow because a basic mechanism has been disturbed, a mechanism that, though regulated from below is subject to higher influence. Muscle and mind must be exercised to keep fit; disuse leads to atrophy. The energy system is elastic and can be trained to work at its best level. Efficiency results from such discipline, yet with due regard to the laws of human energies.

The conditions governing human energies are many and complex and obscure. Little is known about the nature of mental fatigue. You can understand why you should get physically tired when your muscles have expended many foot-pounds of energy. But you may feel just as tired, though differently so, when for hours you have done nothing more physically strenuous than moving the eyes in reading or pushing a pen in writing. Fatigue is of more than one kind, as it results from different orders of strain on one or another function of the nervous system. Physical fatigue was the earlier concern. Both to save labor and to extend energies, men have from primitive days used nature's forces and trained animals to work for them. It remained for the intellectual man further to emancipate energies by invention, leading to the machine age. But there is not and never will be a machine to do man's thinking for him. There will always be brain work and mental fatigue; indeed more and more of it. The machine age has not displaced the mind age.

Fatigue of muscle and fatigue of mind are not the same. A coal miner or ditch digger at the end of his day and a stock manipulator or a creative writer at the end of his day are not experiencing the same kind of fatigue—a common name for different conditions of body and mind. A surgeon called to the scene of an accident uses considerable energy in attending in hurried succession to the injuries of the victims; but this is not comparable to the energy he exerts in scaling a mountain peak if he happens to be an Alpinist as well. Yet he is "all in" from the first occupation; and though weary, he is likewise exhilarated by the strenuous effort of his avocation. It is the emotional strain that tires.

Tables of energy-expenditure, based on calories per hour, show that a man weighing 154 pounds uses 100 calories when sitting at rest; this falls to 77 when he is lying down and even to 65 when he is asleep, just enough to keep the body going. Reading takes the rate up only to 105, and such routine occupations as washing dishes, ironing or typewriting raise it to about 145. Slow walking requires 200 calories and running or severe exercise, 300.

Clearly, the kind of activity you favor reflects the energy equation of your physique. A blacksmith or a stone worker working at the 400 rate would not find suitable outlets for his energies over a tailor's needle, using 135 calories per hour. More and more, within the low energy class of writing, painting, engraving, watchmaking and "white-collared" office jobs, the mind work—of which the calories give no indication—determines the strain of the occupation. The dominance of the mental factor has been referred to as "the defeat of the test tube." Vitality is basically a chemical matter; but the fourfold man cannot be crowded into any setup of test tubes.

H. Armstrong Roberts

CONCENTRATED AND EXACT WORK MEETING HIGH STANDARDS OF EXECUTION IS AS FATIGUING MENTALLY AS DITCH DIGGING IS PHYSICALLY.

In brief, there is the fatigue of physical exertion and the fatigue of mental concentration. Physical fatigue induces "diminished muscular power which," says Dr. Gowers, "is perhaps the least important of the results of brain fatigue."

The difference between expending great amounts of energy in physical exertion and little dabs of energy in mental concentration is in part that of using big muscles in a coarse, free and easy, loose manner and that of using small muscles in a rigidly controlled, tight manner. The brush strokes in scrubbing a floor may go much as one pleases; the fine strokes of painting a portrait or in probing for a bullet and stitching a wound must be carefully graded between too much and too little. There is thus the strain of concentration and precision. Concentrated and exact work, meeting high standards of execution, is mentally strenuous.

There is another order of fatiguing strain, often called nervous emotional strain. It may be related to the work, such as the fear of making a mistake or otherwise failing; or it may be the difficulty of concentrating against the persistent drag of personal worry, which has no relation to the job in hand. Worry fatigues far more than work; it upsets the emotional man. Joy and love of work, good news and cheerful surroundings boost the emotional man and spur the energies.

The decisive determiner of human energies, physical and mental, is the way of their recovery. Recovery offers a double problem: that of sleep as an unconscious state, and the process of recuperation by which energy is restored. We gain in rest what we lose in activity. Only by constantly recuperating our capital have we any reserves. To recuperate completely from spent energies the organism must sleep—desist not merely by turning off the power but by going into an altered state for hours at a stretch. Sleep alone can restore fitness for activity.

Obviously something happens in the nervous system when you fall asleep and the same in reverse when you wake up. Any one who discovers how the trick is done deserves at least two Nobel prizes; and many a millionaire who has lost the trick of it would share his fortune with any one who could restore it. Sleep belongs to the group of vital functions regulated by the primitive autonomic nervous system. These are subject to two orders of regulation or influence. The one operates through the chemical man, the other through the emotional and intellectual man. In the one case you get heated and perspire from exertion and in the other from excitement. You may flush from temperature or from embarrassment. You pale from weakness or from fear. Similarly, excitement or worry or even so slight a change as trying to sleep in a strange bed may keep you awake. An extra dose of caffein will also have this effect; yet more persons are kept awake merely by the belief that coffee has that effect than are kept awake by its real action. Phenobarbital induces sleep by the chemical route; even a drug works more certainly if taken with confidence.

Every portion of the nervous system sleeps except the centers controlling breathing and general metabolism; but the highest nerve centers of the emotional and intellectual man more urgently require sleep. Sleep blocks the active use of the senses and all the complicated processes of thinking; such blocking is produced by inhalation of ether. It is the too active or worried brain that prevents sleep; the muscles and limbs can rest by reclining.

Natural sleep is of course best. When the sleep mechanism works normally, sleep comes as needed. Children do not need sleeping powders, and some grown-ups with fortunate nervous systems can sleep anywhere and under all conditions. They should appreciate their lucky sleeping habits, for that assures them energy to carry on. They may not be as naïve about it as was the Scotch plowboy who said that he didn't know what it was to enjoy a good night's rest; the first thing he knew after putting his head to the pillow was that it was time to get up. We can't stay awake enough to enjoy the pleasant recovery of sleeping; but we do feel on awakening how well we have slept. We enjoy starting afresh with new capital, or go groggy and cross if we have slept poorly. All phases of energy patterns and sleep patterns are subject to general rules and to individual variations. Because in sensitive "nervous" persons the higher centers are too much on the job of living, sleep becomes irregular and uncertain.

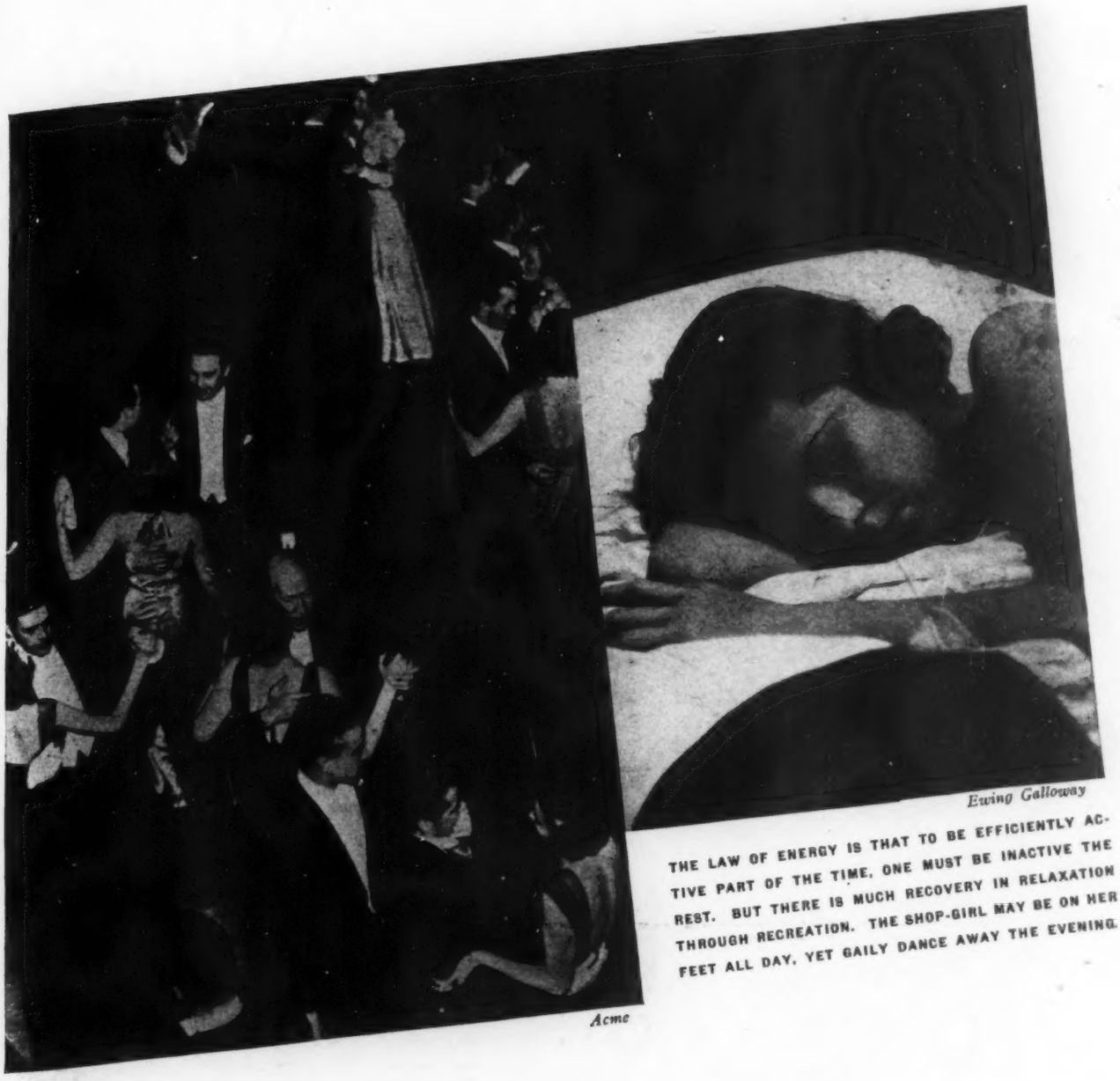
This is not true insomnia, which is rare and more serious; it is just sleep deficiency or sleep irregularity or sleep interference, which however is bad enough. Digestive interference may arise through the same source. In fact, it takes energy to eat and digest; though you need sustenance, you may be too tired to eat. It is a safe rule when overtired to rest before you eat. Nervous indigestion results from disobeying this

physiologic commandment. Civilized human beings should eat in a state of calm and good cheer. The modern, noisy, rushing, quick-lunch counter—unpleasantly reminiscent of the primitive trough—is a most unhygienic spectacle. The two recoveries, by food and by rest, should be congenial partners. At the zoo, sleeping follows feeding—a good habit and not unknown among human beings, but socially inconvenient.

Exactly how we recover, which means how the nerve cells regain their vitality, is likewise unknown, though some investigative genius may in time find out. If he succeeds, another generation may see projected on the screen the brain cells, stimulated by chemical, or it may be electrical, processes as they recover their energy—a marvelous sight! In extreme exhaustion the nerve cells show marked microscopic changes. When the brain cells of carrier pigeons were examined after a 300 mile flight and compared with those of rested pigeons, the latter looked rounded and normal, and the fatigued were frayed and depleted. If not too far gone, they recovered their appearance and vigor. Presumably a similar, but far slighter, change makes the difference between feeling as brisk as a cricket or as limp as a rag.

The critical factor in energy recovery is not how long you sleep but how completely your sleep is recuperative. Hours of sleep are used as a measure, for lack of a better yardstick to indicate degrees of recuperation. A sound sleep, which may be a short one, is a more completely recuperative one. Many who complain of poor sleep are more truly poor recuperators.

What you need and crave is enough sleep to start the day right. *(Continued on page 266)*



Acme

Ewing Galloway

THE LAW OF ENERGY IS THAT TO BE EFFICIENTLY ACTIVE PART OF THE TIME, ONE MUST BE INACTIVE THE REST. BUT THERE IS MUCH RECOVERY IN RELAXATION THROUGH RECREATION. THE SHOP-GIRL MAY BE ON HER FEET ALL DAY, YET GAILY DANCE AWAY THE EVENING.

EATING with the ESKIMOS

By CLARK M. GARBER

The Eskimo's diet is peculiarly the product of his environment, adapted to his special needs. With it, he can live; without it, his race is doomed to extinction

Acme

ANY ONE who has lived an intimate life with the Eskimo people will readily recognize the great danger of making an abrupt change in any of their life processes. Particularly have I witnessed the consequences of sudden change in their diet. The same principle applies with equally disastrous results to their other life processes. It may be stated in the form of a biologic law that abrupt changes in the racial customs and habits of a primitive people cannot be effected without a great shock to their life processes and culture. If such a change administers its effects in the severest sense, death and ultimate race extinction are bound to result. To bring about the transition of a primitive people from their primeval status to enlightenment or a civilized status without allowing the natural processes of evolution to function is to cast them into the abyss of disease, pestilence and unconscious self destruction. Even the mere contact of a primitive people with a higher civilization has a deteriorating influence on their culture. This article is not offered as proof of the foregoing statements. It is an exposition of the cause and effect of Eskimo diet as witnessed through the eyes of a biologist.

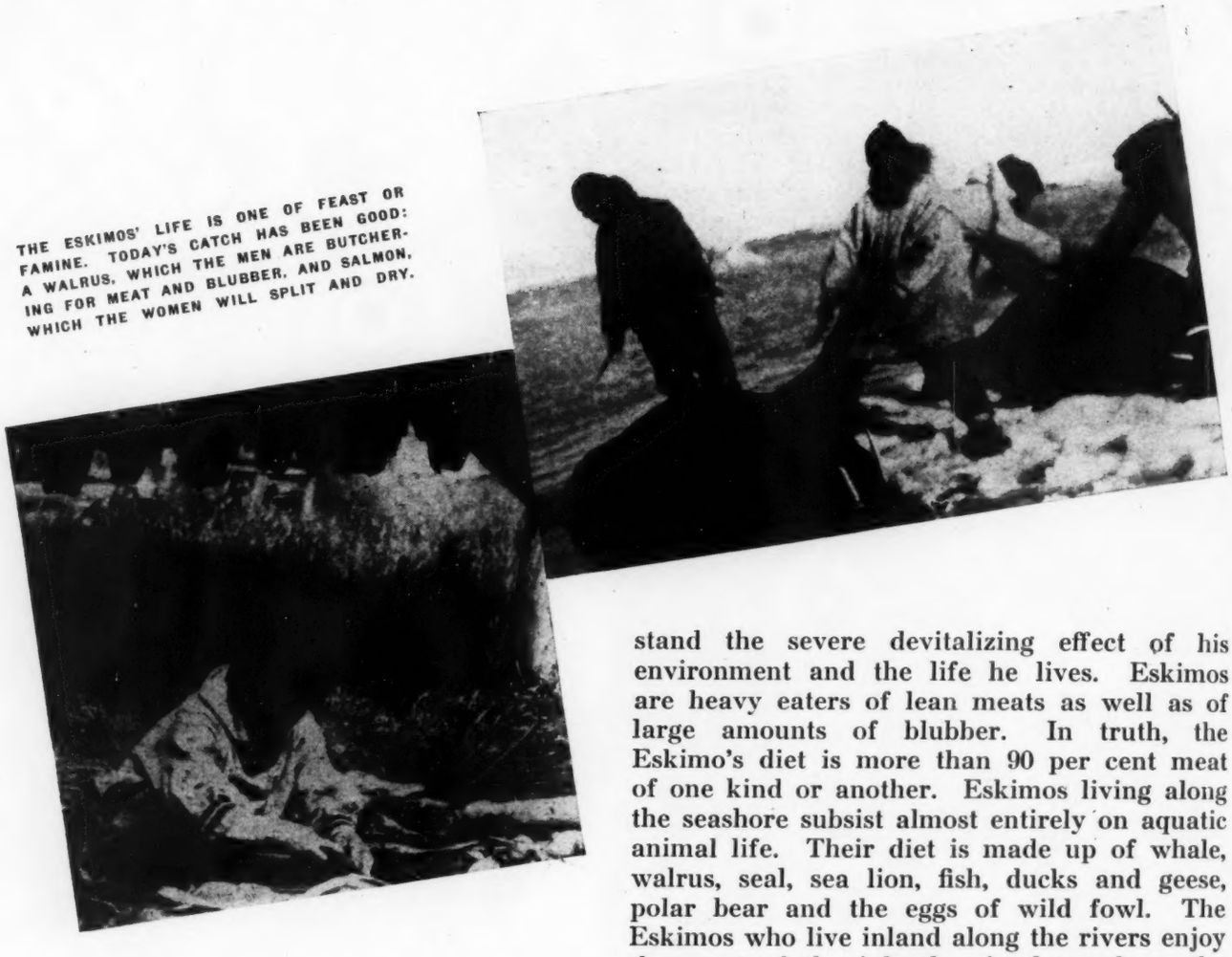
The Eskimo population of Alaska in the days prior to the Russian régime may be safely estimated at 35,000. With the coming of the Russians the population began a rapid decrease and dropped to 25,000 by the time the territory was sold to the United States. Under our government this rapid decrease was not halted. It continued until another ten or twelve thousand Eskimos were deleted from the territory's population. Today there are approximately 13,000 Eskimos in the entire territory. This represents a total decrease of almost two-thirds the entire Eskimo population. Such a rapid decrease in population cannot be laid at the door of environment, regardless of the fact that the Eskimo's habitat is the most difficult that is occupied by any of the races of mankind. Some unnatural cause, some foreign influence, has seriously affected the Eskimo's normal life processes and is still functioning unabated among the Eskimos of Alaska.

The Eskimo has lived in the frigid regions of North America for such a long time, and so long have his evolutionary processes functioned in that environment that he has acquired a truly remarkable adaptation to the life he now lives. His life processes are so highly specialized that he cannot endure a more moderate climate, and neither can he subsist on a diet different from his own. Of course this is not true for short periods of time, but when considered in terms of evolutionary changes, it is definitely true. Unlike the white race, the Eskimo people are not versatile or promiscuous in their adaptations. To remove an Eskimo from his native diet and habitat for more than three years is to sign his death warrant. To educate him in the ways of the white man is to thrust on him a culture decidedly alien to his manner of living. I do not mean by this that the Eskimo people cannot benefit from our civilization. The real problem is to give the Eskimo only those elements in our civilization that he can assimilate with benefit to himself and without detriment to his own culture.

AN ESKIMO WOMAN SKINS A SEAL TO OBTAIN FOOD AND FUR FOR HER FAMILY.

The process of evolution which produced the Eskimo of today also endowed him with many secondary characteristics, which developed hand in hand with the evolution of his highly differentiated physical and psychologic structure. His diet became highly specialized. His reproductive processes evolved factors which maintained a balance between increase and decrease in population. Regardless of the rigors of his environment, his race was able to increase slowly. But along came an alien civilization which unbalanced this relation and brought a greater rate of death than of birth.

Unlike the white man's diet, the Eskimo's is not made up of food items gathered from the four corners of the world. His diet is distinctly the product of his own environment. It may be possible for a white man, by reason of his ability to adapt himself to extreme conditions, to subsist on some of the items in an Eskimo's diet. But an Eskimo cannot adopt the diet of the white man and expect to live. His diet is a highly specialized one and was evolved as his ability to consume it developed. It gives him the maximum protection against cold. By reason of his diet the Eskimo is more nearly strictly carnivorous than any other people of the world. Nature provided all arctic animals with an



THE ESKIMOS' LIFE IS ONE OF FEAST OR FAMINE. TODAY'S CATCH HAS BEEN GOOD: A WALRUS, WHICH THE MEN ARE BUTCHERING FOR MEAT AND BLUBBER, AND SALMON, WHICH THE WOMEN WILL SPLIT AND DRY.

exceptionally fine coat of fur or a thick layer of pure fat, or blubber, underlying the skin to protect them from the frigid temperature of their habitat. The Eskimo instinctively came to use the fine furs for his garments and the heat-giving blubber for his food. The appetite for raw pure fat did not come on him suddenly, nor did he consciously make it a part of his diet. His ability to eat, digest and assimilate large quantities of pure fat evolved hand in hand with his physical adaptation and the differentiation of his organs of digestion and assimilation. Thus he consumes a food which provides heat for his body just as nature intended it to produce warmth for the animals producing it. If the Eskimo's diet of blubber and meat is taken away from him and is supplanted with the white man's diet of starches, sugars, vegetables and so forth, his constitutional resistance to disease disappears. A year or two of the white man's diet is sufficient to permit the development of dental decay, tuberculosis and other diseases with which the Eskimo people have had little experience.

Chemical analysis has disclosed the fact that seal oil, or blubber, contains vitamins identical with those found in cod liver oil. No doubt this accounts for the Eskimo's ability to withstand the severe devitalizing effect of his environment and the life he lives. Eskimos are heavy eaters of lean meats as well as of large amounts of blubber. In truth, the Eskimo's diet is more than 90 per cent meat of one kind or another. Eskimos living along the seashore subsist almost entirely on aquatic animal life. Their diet is made up of whale, walrus, seal, sea lion, fish, ducks and geese, polar bear and the eggs of wild fowl. The Eskimos who live inland along the rivers enjoy the meat of the inland animals, such as the caribou, moose, bear, reindeer, muskrat, fresh water fish, ducks and geese, ptarmigan and grouse. The wonderful salmon of northern waters is one of the most important items of their menu, and doubtless its iodine content accounts in a large measure for the absence of goiter and other glandular diseases among them.

The vegetable element in the Eskimo's diet is so small that it can be considered almost negligible. However, a beneficial effect is probably derived from the tundra roots, berries and greens gathered in the summer. This effect is somewhat similar to that of a spring tonic. But the roots, berries and greens are not eaten as the white man would eat them. They are usually immersed in seal oil or are incorporated in *kamamuk*, "Eskimo ice cream," a mixture of berries, seal oil and fresh reindeer fat beaten together until they become a frothy mass. Blueberries are frequently immersed in seal oil and stored in pokes of seal skin for consumption during the winter months. The greens which are for the most part the tender shoots and leaves of dwarf willows have a decidedly sour flavor similar to the acid flavor of sour dock.

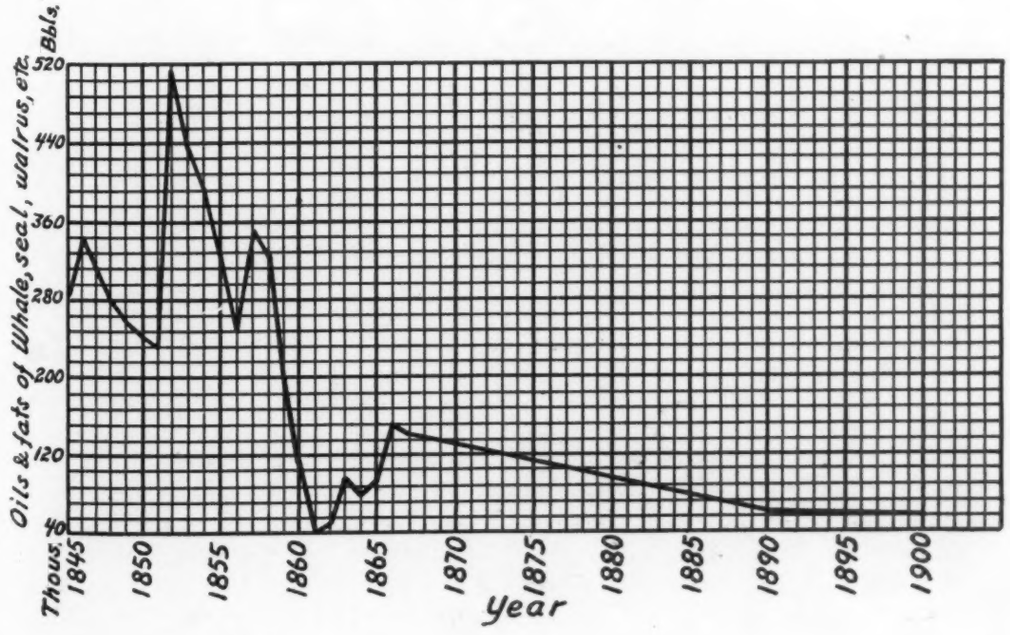
Rarely do the Eskimos conserve foods against the coming of lean days. Theirs is a life of

feast or famine. They live from day to day and allow the future to take care of itself. However, they sometimes take an overabundance of whale, walrus or seal, the excess of which is stored in underground caches or snow banks for future use. In the beginning of my educational and medical service among the western Eskimos I witnessed them eating such rotten foods as would kill a white man in short order. When they began digging their vitiated surplus meats from the caches and snow banks, when their diet consisted of rotten fish and rancid fat, I would suffer many qualms as to the probable outcome. Invariably I would provide my medicine kit with items for combating and treating ptomaine poison, and always, to my utter astonishment, they would eat those rotten poisonous foods and thrive on them. Lest the reader might think that the cooking process would destroy the poisons in their vitiated foods, I wish to say that in only a few instances did they cook their food. The usual and customary method was to devour it raw. Soon I learned not to be alarmed about their welfare when they ate such foods, for I came to understand that their powers of digestion and assimilation were especially adapted to their diet. In only one case did I lose a patient from ptomaine. This was a little girl who had eaten a generous helping of rotten fish heads followed by a copious draught of milk, the kind known as canned or condensed. In this case the milk proved an ideal medium for the development of ptomaine. Had I learned of the little girl's sickness at an early stage I might have saved her life.

In the early winter months, *titmuck* is a favorite dish. This is rotten fish in the literal sense of the word "rotten." A hole is made in the ground and lined with grass. The fresh salmon are taken from the river and dumped into the hole without the least pretense at cleaning them. When the hole is full of fish it is covered with grass and earth, and the mass is allowed to decay and ferment. At length the *titmuck* hole is opened; and if the mess is not frozen, it must be removed by means of a ladle. One does not need an extra keen olfactory sense to discover when the Eskimos are subsisting on *titmuck*. The fact is well advertised, because the traveler may readily sense the presence of a village by its smell, even before the village is visible. At times when I have run short of food for my dog team I have tried to feed the animals on *titmuck*, but even the dogs refused it, preferring to go hungry.

The Eskimo mother long ago recognized the inability of young children and infants to thrive on the strong foods eaten by the adults. For this reason, children are nursed until they are from 5 to 7 years old. It is a strange sight indeed to see a school child of 6 years toddle home to get his noonday lunch from his mother. In the later part of the nursing period the mother gradually introduces the heavier foods to the child until he finally acquires a stomach for the things eaten regularly by the grown-ups. The first solid foods of children consist of such dainty morsels as the raw marrow from the leg bones of the reindeer, predigested clams from the stomach of the walrus, eggs of wild fowl and tender bits of fresh meat prechewed by the mother.

In two isolated cases observed in a very primitive village, I witnessed to my astonishment two Eskimo babies suckling a female dog. Such cases are found only in conditions of extreme famine and necessity. The Eskimo mother was unable to provide natural nourishment for her little tots, and rather than see them die the pups were destroyed, and the children took their places. *(Continued on page 272)*



BY 1890 THE WHITE MAN HAD SO DEPLETED THE ESKIMOS' NATURAL FOOD SUPPLY THAT IT WAS REDUCED TO THE STARVATION POINT.

THE AMEBAS

THE DOCTOR'S ARMCHAIR STORIES: V

By Fred O. Tonney

DR. SMITHIES was late. It was 8:30 already. Sonny, aged 9, had been waiting since supper and was all on edge for fear of missing his evening story.

The doctor had been away for a few days, attending a convention. He had phoned home briefly that morning before going on his rounds.

Mom, too, seemed a bit restless.

Then came the familiar rattle of the old flivver, up the drive, past the house, back to the garage—and the squeak of brakes!

"Won't he ever get a new car?" thought Mom, smiling indulgently.

"Dad's here, Mom!" Sonny shouted and ran to the back door.

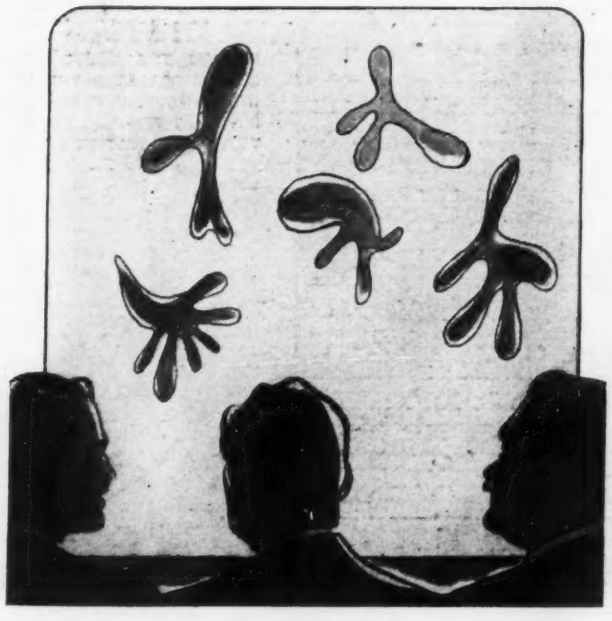
Then tramp, tramp! Up the high steps to the lighted frame of the kitchen door, with Sonny standing silhouetted in its yellow glow.

"That's something real to come home to," the doctor was thinking. "Makes up for a lot!"

Sonny's welcome was effusive. "But—why didn't you come home this morning, Dad?"

"Couldn't make it, Son, right off the train. Too much to do!" he replied.

A MOTION PICTURE OF THE AMEBAS TAKEN RIGHT OFF THE MICROSCOPE WAS SHOWN AT THE CONVENTION.



The doctor put down his grip. Mom kissed him, then hastily picked it up and carried it off for unpacking.

Arm in arm, Sonny and his dad went on to the old-fashioned parlor. The logs crackled cheerfully in the grate, as Dr. Smithies sat down in the big armchair. Sonny crept expectantly into his lap.

"Who'd you see today, Dad?" asked the boy.

"Patricia Taylor."

"Banker Taylor's little girl, you mean?"

"Yes, Son, and her mother too. They've both been sick, but Patricia's the worst off."

"Then why'd you go away, Dad?"

"Well, I felt sort of squeamish about that myself, Son, going to a medical convention with them as sick as they were." He puffed at his pipe. "But I'm glad now that I did."

"Why, Dad?"

"Because that's the way I found out lots more about what's ailing them," declared the doctor.

"How did you?"

"Well, you see, Son, down at Uniontown at the state medical meeting there was a paper read—"

"Uh-huh."

"—by one of the public health doctors up at the big city. He was from the health laboratories there."

"What'd he talk about, Dad?"

"Amebic dysentery."

"Gee, what's that?"

"Well, it sounds like a new disease in these parts, Son, but maybe it isn't so new after all. A few years ago, after the Century of Progress Exposition in Chicago, there were cases of it reported all over the country because a lot of people who went there came home with the sickness. You're too young to remember much about that, though.

"Well, this doctor at the meeting showed us some moving pictures of amebas, taken right off the microscope—just like you see them in the laboratory."

"Moving all around?" asked Sonny, enthralled.

"Sure, Son! Anyway," he continued, "there's no doubt the Taylors 've got it."

"Patricia's awful sick, I heard, Dad."

"Yes, that's right! I was there most of the day—or between there and the state laboratory up at Uniontown."

"What is it she's got, Dad? What'd you say —am-am-eebie?"

"Amebic dysentery," the doctor supplied.

"What kind of disease is *that,* Dad?"

"Why, it's a queer kind of diarrhea, or running off of the bowels, that we used to think only people in the tropics could have. It's caused by a sort of microscopic animal called an ameba."

"An animal?"

"Yes, it's an animal all right, but very small. It can be seen only with the microscope. And it's not a germ at all! Germs are plants, you know. This one is the lowest form of animal life that's known."

"How do you mean, Dad?"

"Well, you see, it's only a single cell, just a little round thing, full of fluid under the microscope; and it moves by a sort of flowing along of its insides."

"It hasn't any body, Dad?"

"No, not like ours, anyway, no mouth or stomach or legs—or brain, even—only fluid enclosed in a rim. But it's alive, and it moves around."

"Why did you go to the convention, Dad?"

"Well, I guess mostly on account of Patricia. I was curious about this paper that was to be read on the program. It sounded like Patricia's case in lots of ways."

"What'd the man say, Dad?"

"That the disease occurs not only down south and in tropical countries but all over!"

"In this country?"

"Everywhere!"

"You mean it's right here, Dad?"

"Yes, I guess it is, Son. Only we didn't realize it before."

"You're sure Patricia and her mom have it?"

"Well, that's what I've been doing today, Son, running from the Taylor place over to the state laboratory at Uniontown in the flivver with specimens of her stools in vacuum bottles for Dr. Williams to look at."

"What'd they do about it in the laboratory, Dad?"

"Oh, Dr. Williams took a drop of the specimen with a drop of water on a glass slide and looked at it under the microscope. I sat there

for quite a while, watching what every one was doing in the laboratory. All the while, he looked and looked and looked! Finally he asked me to look, too!"

"What'd you see, Dad?"

"Well, first there was a roundish thing down there, like the tire on a wheel. It was full of liquid—fluid, you know. Then, all of a sudden the rim popped out to one side—'way out—and then farther and farther out."

"Gee!" exclaimed Sonny.

"And the fluid just flowed right over into that new part, and soon the whole ameba had moved over to the other side! And could that fellow travel!"

"And it didn't have any legs, Dad?"

"Nary a leg, Son, not a sign of one—only a rim full of fluid, nothing else at all. But it certainly moved along fast, or maybe flowed along! Anyway, it got there all right! I remembered seeing something like that back at Johns Hopkins University when I was a student there. At that time the patient was a man from Puerto Rico. And the microscope showed a round thing exactly like this one, the same wheel rim full of fluid and the same sudden outburst of the rim sidewise, with everything flowing along into the new part. Then we sat there and looked some more; pretty soon we found some of them with red blood cells inside!"

"You mean, there was Patricia's blood in 'em?"

"Yes, the red blood cells! You see, the ameba eats these red cells; only, not having any mouth or stomach, he just takes them in through his outside rim and then digests them into his fluid. He likes red blood cells!"

"Doesn't that make a person awfully sick?" queried Sonny.

"Oh, yes! It weakens 'em so they almost can't stand up, and they have to go to bed."

"What else does this ameba do to us, Dad?"

"Well, it grows and grows in the lower intestine. And pretty soon it begins to burrow into the lining."

"To make a hole, you mean?"

"Sometimes it does, Son, but mostly it causes ulcers in the lower intestine—buttonhole ulcers, they're called, because the hole is wide at the bottom and small at the top."

"Do they ever eat right through the intestines?"

"Yes, sometimes they do. You remember, I told you about that time in Chicago. Well, the public health doctor at the meeting told us about an actress who got it, and she died of a hole in the intestine."

"And the amebas did it?" asked Sonny, astonished.

"They did. But nobody knew then just what was the matter with her. After she died they examined the tissues under a microscope, and that's how they found out."

"Did they find the amebas then?" asked Sonny.

"They certainly did! That's how we know what she died of. It was amebic dysentery!"

"Well, Dad, what about Patricia and her Mother? Will they get well?"

"Yes, I think so. They're getting the best of care. Once you know what you're dealing with, it isn't so hard to treat amebic dysentery."

Sonny was relieved.

"But, Dad, where did Patricia get these amebas that are making her so sick? Did she get them in the big city, do you think?"

"I've been trying to figure that out, Son. She got back from there about three weeks ago, and I think that's exactly where she *did* get 'em. Dr. Williams thinks so too."

"But how did she, Dad?"

"Well, you see, there was an outbreak there. The food and water at the hotel where she stayed got contaminated."

"You mean the amebas got into the food and water that people ate and drank?"

"Yes, of course, Son. That's the only way amebas can ever get into us—through our mouths."

"But our food and water here at home, Dad —*that* couldn't have amebas in it!"

"I'm not so sure, Son. We've been finding out lots of things lately" . . . his voice trailed off reflectively.

"What, Dad?"

"Well, this amebic dysentery seems to be a lot more common here in this country than we ever thought it was. Everywhere that it's been looked for in the United States it's been found—in California, in the South, in Tennessee and in the northern cities, too. There must be something about the way it spreads that we don't know, I guess."

"Well," said Sonny, "why don't we just watch the foods we eat and the water we drink, and keep from getting it?" *(Continued on page 281)*

What Sonny heard that night about positive measures for maintaining health made a lasting impression. But there is more—much more—that must be told.

The problems of water supply, sewage and garbage disposal, protection of perishable foods and numerous other factors that affect health are of such vital importance to you, your family and your community that you cannot afford to be ignorant about them! The expenditure of a little time and attention will bring rich returns in health dividends. These problems will be discussed during March in a series of broadcasts on public health, sponsored by the American Medical Association and the National Broadcasting Company. For further particulars, see page 252.

FIGURE SKATING (Continued from page 210)

only in books. He may have been on the downhill side of life; he may have been on the plump order, but he was a fine skater, and how ashamed we were of our low anticipations when it developed that he was most friendly and anxious to teach us anything which he knew, this being a characteristic of figure skaters. He may be dead now, but he was a "swell guy," as would be attested by many a middle aged skater whom I could name. Probably there are several morals in this episode, but the only one to which I would advert would be that, even as one cannot tell by looking at a frog how far he can jump, so it is unsafe to assume that a person of 50 years of age and a waist-line can't flash quite a merry skate.

Figure skating, in contrast to straight skating, is a sport which has endless possibilities in variation, a challenge to invention of new combinations, a social asset in comparison of pet figures with other devotees. It is fascinating to skate the figures which one knows thoroughly, with which familiarity has bred assurance but not contempt. It is equally fascinating to discover new figures which somebody else has devised and which require a good deal of practice before they are mastered.

In skating is reached the acme of beauty of movement of the human body. Obviously this statement is a matter of opinion since beauty is not a thing to be estimated by tape or scales, and it may fairly be questioned by the advocates of diving or dancing—but "stet" as the printers and crossword puzzles say. Fine dancing is beautiful, but to me it lacks something of the smoothness and sweep of skating. Most stage and exhibition dancing has something of the hop, skip or jump in it, a more or less up and down movement for which skating substitutes a glide. A good Russian dancer can leap a very respectable distance, perhaps 20 feet, but a glide of twice that distance is nothing for a skater of any nation. He can travel a hundred feet and more with a serpentine on one skate and no effort other than an easy, pendulum swing of the free leg. Skating provides freedom of smooth motion with a minimum of evident effort. And when it comes to whirls, spins and pirouettes there is no question where the advantage lies. In no other way can a human being come so close to flying under his own power. Diving is beautiful and must give something of the sensation of flight, and skiing is said to simulate flight very well; but both of these sports make large use of gravity. The dives which we admire so much and so properly would lose a great deal of their beauty if attempted from a takeoff on a level with the water. Skiing uphill does not impress the onlooker as partaking in any way of the characteristics of flight.

"Breathes there a man with soul so dead" that he isn't quickened into sympathetic response by a marching band playing "The Stars and Stripes Forever" or an orchestra presenting a Strauss waltz? Who doesn't thrill as the West Point cadets go marching along with that rhythmic, *(Continued on page 268)*

FORECAST

Winter's done, and April's in the skies,
Earth, look up with laughter in your eyes.

—Charles G. D. Roberts.

In the spring—the young man's fancy (as well as that of the middle aged and elderly) lightly turns to thoughts of—golf. So in the April issue, *John Eisele Davis* writes on golf for the tired, the timid, the neurotic and the normal.

In the spring—a housewife's fancy lightly turns to thoughts of vitamins, vegetables and vitality for her family. For her, *Harriet Morgan Fyler* presents "The ABC's of Asparagus"—and some tempting ways of preparing it.

In the spring—earth looks up with laughter in her eyes; and *Dr. S. A. Shoemaker* takes the cue to tell *Hygeia* readers of "The Healing Virtue of Laughter" and how it may act as tonic for the tired and medicine for the miserable.

In the spring—the National Tuberculosis Association begins its Early Diagnosis Campaign; and in cooperation, *Hygeia* presents a new series of articles, "Ideas and Ideals in Tuberculosis" by *Dr. B. P. Potter.*

HEART MURMURS (Continued from page 207)

However, even at that time he recognized the fact that blowing murmurs were also common in hearts which were quite normal, and he stressed the importance of linking the murmur with other signs of heart disease before making a diagnosis.

It seems that Laënnec's observation about the presence of murmurs in normal hearts was lost sight of for many years; so that at the beginning of the present century there was a great deal of confusion about the interpretation of murmurs. It was Sir James Mackenzie, one of the great physicians of the modern era, who began to impress on physicians that heart murmurs were present in many normal persons, particularly children. He published a book on heart disease in which he described the results of his many years of observation of patients. Mackenzie was a keen observer, and his great contribution to medicine was the fact that he made follow-up studies on his patients for many years and in many instances for their entire lives. It was therefore inevitable that he should become acquainted with the fundamental meaning of various symptoms and signs in heart disease. He made this statement about heart murmurs: ". . . I have watched numbers of healthy young people, who exhibited this [functional] murmur, grow into manhood and womanhood and lead healthy and vigorous lives, and never show the slightest signs of heart failure."

Two types of heart murmurs are now recognized: the organic murmur, which is due to actual disease of the heart valves, and the functional murmur, which is due to some cause other than actual disease of the heart and which is often present in normal persons.

Why is it important for parents to know about heart murmurs? There are many reasons for this. If a murmur is organic it is essential that the parents know this so the child may receive proper care and be enabled to live as comfortably as possible, and the child should be given special attention in order to prevent complications. He most certainly should not engage in athletics. On the other hand, if a murmur is functional the child should not be treated any differently than is the child who has no murmur whatever. He may participate in athletics; and, above all, the child should never be given the impression that there is something wrong with his heart—because there isn't.

Parents often receive notes from schools where physical examinations have been made, calling attention to the presence of a heart murmur in their child. There is no need for alarm when this is noted; it means that a heart murmur has been discovered and that the child should have further examinations made in order to determine whether or not it is organic. The proper procedure is to have the family physician make a careful check on the murmur. It is important for parents to remember about a heart murmur when the physician tells them about it. At some future time some febrile condition such as scarlet fever may develop, and during the course of the illness a murmur may be discovered. It is of great importance to the physician to know at such a time whether or not the murmur was present before the onset of the illness. If the mother knows that some previous examination had revealed a murmur this fact will be of great value in assisting the physician to differentiate a functional from an organic murmur. Murmurs often occur during febrile illness such as pneumonia, scarlet fever and measles; most of these murmurs are functional. Murmurs that develop during attacks of rheumatic fever or St. Vitus' dance are usually organic and indicate the presence of heart disease.

Murmurs are of great importance during childhood. About 10 per cent of all new-born babies show heart murmurs, only a small percentage of which are organic. From 6 years to puberty, murmurs are common; about 8 to 10 per cent of all children of this age have heart murmurs at some time or other. Only a small percentage of these also are organic.

How is a functional murmur distinguished from an organic one? This is frequently a difficult matter even for the most experienced physician. There are several important points in the differentiation. Most important is the general condition of the child. If the child is and has been perfectly well and has never had any symptoms of heart disease, such as shortness of breath, fatigue, low grade fever and weakness, or if the child has never had any attacks of rheumatic fever or St. Vitus' dance, it is likely that the murmur is functional. Of course, the physician also takes the character of the murmur into consideration; whether or not it is transient; whether it is loud or soft, and whether it persists after exercise or change in posture. Functional murmurs often disappear after change in posture or after exercise; organic murmurs are persistent. In addition to this, other studies should be made of the heart. X-ray examinations should be made for any evidence of enlargement of the heart; if there is any notable enlargement the murmur is organic. Special examinations such as an electrocardiogram are often made as further adjuncts in the diagnosis.

It may thus be seen that the differentiation between functional and organic murmurs is no easy matter. Sometimes several examinations must be made on differ- (Continued on page 274)

TO

RED NETWORK

*WEAF	New York
WNAC	Boston
WTIC	Hartford
*WJAR	Providence
WTAG	Worcester
*WCSH	Portland, Me.
KYW	Philadelphia
*WDEL	Wilmington
*WFBR	Baltimore
*WRC	Washington
WGY	Schenectady
*WBEN	Buffalo
WCAE	Pittsburgh
*WTAM	Cleveland
*WWJ	Detroit
WSAI	Cincinnati
WIRE	Indianapolis
*WMAQ	Chicago
KSD	St. Louis
*KSTP	Minn.-St. Paul
*WHO	Des Moines
WOW	Omaha
*WDAF	Kansas City
WLW	Cincinnati
WFEA	Manchester
*WSAN	Allentown
WORK	York
WMBG	Richmond
WCOL	Columbus
*WGL	Fort Wayne
WOOD	Grand Rapids
*WBOW	Terre Haute
*WGBF	Evansville
*WEBC	Duluth-Super'r
KSOO	Sioux Falls
KANS	Wichita
*WTAR	Norfolk
*WPTF	Raleigh
*WSOC	Charlotte
*WFBC	Greenville
*WWNC	Asheville
*WIS	Columbia
*WCSC	Charleston
WAVE	Louisville
WSM	Nashville
WMC	Memphis
WSB	Atlanta
*WAPI	Birmingham
*WJDX	Jackson
*WSMB	New Orleans
WROL	Knoxville
*WJAX	Jacksonville
*WFLA-WSUN	Tampa
*WIOD	Miami
*KGBX	Springfield, Mo.
KVOO	Tulsa
*WKY	Oklahoma City
KGNC	Amarillo
WFAA	Dallas
WBAP	Fort Worth
*KTBS	Shreveport
*KTHS	Hot Springs
KARK	Little Rock
KPRC	Houston
WOAI	San Antonio
KFDM	Beaumont
KRIS	Corpus Christi
KRGV	Weslaco
WTMJ	Milwaukee
WIBA	Madison
WDAY	Fargo
*KFYR	Bismarck
KOA	Denver
KDYL	Salt Lake City
*KPO	San Francisco
*KFI	Los Angeles
KGW	Portland, Ore.
*KOMO	Seattle
KHQ	Spokane
*KTAR	Phoenix
KOB	Albuquerque
KFBK	Sacramento
KWG	Stockton
*KMJ	Fresno
KERN	Bakersfield
KIDO	Boise
KGIR	Butte
KGHL	Billings
*CFCF	Montreal

* Reported broadcasting the programs.

ORCHIDS ON OUR BROADCAST!

THE MAIL response to the radio program "Your Health," broadcast each Wednesday at 2 p. m. eastern standard time and heard at corresponding hours in all parts of the country via the Red network of the National Broadcasting Company, indicates that the program is useful not only to the schools, as evidenced by a letter from a school girl published in this space last month, but to public health departments. The following paragraphs are taken from a letter received from Eleanor Hassell, Health Education Division of the Mississippi State Board of Health:

> Orchids to the A. M. A. health broadcast! We consider it peerless and have sent the enclosed letter * to all school principals in the state.
>
> Board of Health employees listen to the program, and each week it is publicized by a fitting poster on the house bulletin board.
>
> * MISSISSIPPI STATE BOARD OF HEALTH
> Felix J. Underwood, M.D., Executive Officer
> Jackson, Mississippi
>
> TO THE SCHOOL PRINCIPALS
> Dear Sir:
>
> A radio program dedicated to America's schools and entitled "Your Health" is broadcast each week by the American Medical Association.
>
> The finest type of health message, this dramatized program is so interesting and enjoyable that it makes a strong appeal to school boys and girls.
>
> The program is carried by the National Broadcasting Company and is available locally over WJDX, Jackson; WMC, Memphis; and WSMB, New Orleans each Wednesday from 1:00 to 1:30.
>
> I believe you will find this broadcast a decided asset in your health teaching. Teachers consider it a delightful way to instruct; pupils, a painless way to learn. The year's program is enclosed.
>
> Your attention is also called to the State Board of Health's broadcast over WJDX each Saturday morning from 10:00 to 10:15. Copies of these talks are available on request.
>
> Sincerely yours,
> FELIX J. UNDERWOOD, M.D.
>
> FJU/h
> enc.

Voluntary health organizations likewise are finding the programs useful, not only in their special fields but as a general supplement to health education in the community. The following letter comes from Mrs. W. B. Dingle, secretary, Columbia County Tuberculosis League, Dayton, Wash.:

> The Columbia County T.B. League wish to express their gratitude for all the grand time you gave us on your program Dec. 1.
>
> Your program every Wednesday is most interesting and is enjoyed by many in our community.
>
> It means *so* much.

Another letter indicating the usefulness of the program in the schools comes from Miss Helen F. Munro, Bryant School, Superior, Wis. Miss Munro says, among other things:

> I am in charge of the physical education for girls and my eighth grade is having the grand opportunity of listening to this radio program. The material and manner of presentation is excellent and I feel they are getting much out of it.

HEALTH TEACHING HELPS BY RADIO

DATES AND TOPICS OF WEEKLY BROADCASTS

1938

PUBLIC HEALTH

March 2—Water, Waste and Sanitation: importance of community control of water supplies, sewage disposal and general sanitary matters.

March 9—Protecting Perishable Foods: what the community can and must do to protect fresh foods such as fish, fruits, vegetables, meats, bakery goods.

March 16—Keeping Books on Health: the meaning and the importance of vital statistics, contagious disease reporting and community health records.

March 23—Catching Disease from Animals: rabbit fever, rabies, undulant fever and similar infections, and what can be done about them.

HEALTH EDUCATION

March 30—A Fool for a Day
Fallacies and popular beliefs that are not true and that influence behavior in a manner detrimental to health.

April 6—Living with People
Elements of mental hygiene; getting along with people; adjustment to the environment.

April 13—It May Happen to You
Accidents in the home and on the highway and ways to avoid them.

April 20—Who Chooses Your Doctor?
The characteristics of a reputable physician as distinguished from cults, quacks, fakers, faddists or exploiters.

MOTHERS AND CHILDREN

April 27—Healthier Babies
Daily routine of the healthy baby; medical supervision; feeding.

May 4—Healthier Mothers
General advice for the expectant mother; good for boys and girls to know about.

May 11—Hospitals Aid Health
The place of the hospital in the health program of the individual and the community.

May 18—Runabouts, 1938 Model
The preschool child and the health and personality problems of that age.

USING HEALTH KNOWLEDGE

May 25—The Health Check-Up
Periodic health examination and what follows, and why.

June 1—Vacation Plays and Misplays
Making the vacation a real contribution to health and recreation.

June 8—Graduation and Then What?
A new phase of life begins at commencement, and health contributes to success.

June 15—What Medicine Offers for Health
Flashes from the American Medical Association meeting at San Francisco, giving highlights of medical progress.

SUGGESTIONS FOR TEACHERS

The following briefs of the sixth group of programs, together with the reading references and suggestions for things to do in connection with the programs, are intended as helps to teachers. The program itself is not intended to supplant health teaching, but to supplement it.

March 2: Water, Waste and Sanitation.—A liberal supply of water is one of the first necessities of man. Waste water, together with other waste created in the process of living, must be disposed of in such a way as not to create disease or offense.

The old idea about disease arising out of accumulations of garbage, rubbish and ashes has been considerably modified. Dirty and untidy alleys and dumps are unpleasant; to the extent that they may favor the breeding of rats and flies, they may indirectly be the cause of disease, but they are not as important as other sanitary problems. Among these are water supply and sewage disposal, protection of perishable foods and garbage disposal. We will deal in this program with water, sewage and garbage.

The primitive way to get water is to find a spring, a river or lake which is pure enough to drink. This is all right in remote regions where few men dwell, and then only for a little while at a time in any one place. It is still possible, in some of the distant and seldom visited mountain and forest regions, to use natural springs and lakes and streams in this way. But wherever man has lived, he has ruined natural waters with pollution and with wastes from factories. Therefore the water supply problem in civilized communities is a serious one.

Water for single dwellings such as farms and country houses is usually taken from wells. Wells, to be safe, must have certain characteristics:

1. They must be drilled or "driven," not dug.

2. They must be deep enough to tap water supplies not subject to contamination from surface waters; this means that they must go through the first layer of rock, commonly called hard-pan, to tap the pure waters underneath.

3. They must have a solid pipe casing extending without interruption and without leaks from the water source at the bottom to above the surface of the ground.

4. They must have a pump which is screwed firmly and without leakage to the top of the pipe casing.

5. The pump must work without priming, for priming may introduce pollution. Priming a pump is pouring water into the top of it to start it flowing.

6. There must be a concrete cap which keeps waste water from flowing back into the well, and a trough to carry water away some distance from the pump.

7. The water must be examined about every three months for purity, or oftener if there seems reason for so doing.

Water for cities comes out of the faucet in the kitchen, and few citizens know how it gets there. Such water may come from artesian wells; in that case the wells must conform to all the requirements previously listed, except that they will not of course have a hand pump, a concrete cap and a waste water trough but will be connnected to the city's pumping machinery. Water may be drawn from a lake or stream; or the city may own reservations in nearby mountains (or sometimes mountains not so near, as in the case of Los Angeles and New York), or it may be drawn from rivers. City water supplies must have the following safeguards:

1. The source must be as pure as possible. Water reservations are usually fenced and guarded; no habitations are permitted on them and no camping, hunting or fishing, for fear of pollution. In the case of lakes, the intake is usually located far from shore and as far from the city as possible. The same is true of river sources.

2. The water must have as many of the following processes applied to it as may be necessary, in view of the purity or lack of purity of the source:

(*a*) If the water is not clear it must be settled in great settling basins. If it contains too much hardness or mineral matter which interferes with its taste, color or appearance it may need treatment at this stage by various chemical means to remove the objectionable matter.

(*b*) It must be treated with liquid chlorine to kill disease germs which may be in it.

(*c*) It must be filtered to remove solid matter, including killed germs which may not have settled out in the settling basin.

(*d*) It must be chlorinated again to supply an emergency provision against germs which may reside in the pipe system or may be introduced after filtering and settling.

(*e*) It must be examined at the plant or elsewhere or both, daily, for its chemical and sanitary quality.

[NOTE.—In the case of pure, clear water, the settling, filtering and chemical treatment may be omitted, but at least one chlorination is best insisted on for safety. If done correctly and not in excess this produces no disagreeable taste, and it is entirely safe and harmless.]

Persons living in a community where there is good city water, or even where the water is safe but not especially palatable, are unwise to use wells or other sources which may taste better but be less safe. Taste and appearance are no criteria as to safety.

Bottled waters sold in cities may or may not be safe, depending on where they come from and how they are handled. The local health officer should advise as to what supervision is extended to water bottlers and how safe the product is.

When in doubt as to safety of water to be used for drinking pur-

poses, whether municipal, private well or other sources, boil it first or add one drop of tincture of iodine (the first aid antiseptic) to a pint of water, shake it well, and let it stand for thirty minutes before using. This makes it safe and gives it no bad taste. Water on trains and ships is safeguarded by the United States Public Health Service.

Garbage, to be safely handled without giving offense, requires the following:

1. In the household it must be drained and securely wrapped; glass and tins must be disposed separately, never wrapped with garbage. If there is no municipal garbage service, the garbage must be burned or buried. Because garbage contains much moisture even when drained, it takes a hot fire to reduce it completely to ashes.

2. If refuse is collected by the municipality, covered cans of sufficient capacity must be provided. They must have a tight cover and be placed where they are easily accessible to alley or street for collection. The cover should be chained to a nearby fence or post so it will not be carried away or be run over and crushed so it no longer fits. The can should have handles or a bail for easy handling. It is best set on a concrete platform which can be kept clean. It is advisable to have a fence or stakes about the can to prevent tipping by dogs or mischievous children.

3. The city must provide removal at frequent intervals and disposal by satisfactory method. The best way is incineration. Rendering to salvage the grease is advocated, but it seldom pays for its greater expense. Dumping and covering are all right if there is sufficient covering material available at once; but even so, garbage dumps have a tendency to breed rats. Feeding to swine is a bad way to handle it—the garbage must be unwrapped for feeding. It creates a nuisance, including rats.

Disposal of the sanitary wastes of the community, including the products of industrial activity, grows more difficult as the country grows more closely settled. Long since, fishing has disappeared from the waters near civilization, because fish have been driven away or exterminated as the result of contamination growing constantly worse. Finally, man grows conscious that the nuisances he has created are no longer to be borne. Often the invasion of a community by epidemic disease of the typhoid, cholera or dysentery type or the continuance of high infant mortality due to intestinal diseases is the result of pollution and eventually wakes the country up to its carelessness. Water purification is not enough if the water from which the supply is taken is too badly polluted. The time comes when the community must supply both sewage purification and water purification; the former in justice to its neighbors as well as for its own protection and the latter for its own safety.

Sewage from a city or a single dwelling, though differing in amount, is essentially the same in character, except for industrial wastes which complicate the situation in cities. Because of this difference separate consideration will be given them:

Waste from a single residence may be disposed of by the following means:

1. A simple earth pit. This, to be safe and inoffensive, must be either gradually filled in with earth as it is used, treated with lime, periodically burned out, or emptied.

2. A cesspool or septic tank or combination thereof. A cesspool is a deep well-like pit, with gravel at the bottom. It holds waste matter for a time, allowing the liquid to filter off into the ground. A septic tank is a tank in which waste matter is held while bacteria act on and fermentation destroys the material, converting it to liquid. A combination of septic tank with overflow into a cesspool is more effective than either one alone. In the case of a septic tank alone, the

liquid is usually carried out underground into a series of pipes laid without cementing the joints, so that underground filtering results over a rather wide fanshaped area. These drains, as well as cesspools, must be removed from the neighborhood of wells nearby. The existence of such disposal methods is the main reason why wells should go deep for water, while the shallow upper layers of the soil are used for disposal. Liquid filtering through a great deal of soil is purified. In limestone country, where rocks crack, such disposal is not advisable nor is the use of wells.

3 Concrete vaults, which are regularly emptied, the contents being buried in a suitable location.

4. Chemical vaults, where fermentation and chemical action are relied on for destruction of waste matter. The chemicals usually employed are caustic alkalies. This method is not satisfactory.

5. Flush or water carriage systems of plumbing such as we know in modern cities. These can also be applied to single rural dwellings by supplying water pumping machinery and by using a septic tank and cesspool as described.

The sewage which is delivered to the city sewer system cannot be handled by simple means. Its volume is too great for burial even if it were not highly fluid. The simplest device is to empty it into a large body of water nearby, such as a river or lake, and to hope that nature will take care of it by dilution. The common idea that running water purifies itself is based on a misconception; standing water purifies itself by settling much more effectively than running water. Other communities may depend on the same river or lake for a supply of drinking water; hence the policy of simply dumping sewage is selfish and sooner or later is ruinous to the community itself. Purification is necessary before dumping. This is accomplished in various ways, of which the principal ones are:

1. Settling in basins, with provisions for fermentation, as in a septic tank.

2. Exposing to oxygen by spraying the liquid into warm air chambers and finally into the open air.

3. Drying the remaining solid matter, then grinding and selling for fertilizer.

4. Discharging the purified liquid waste into a large body of natural water for final dilution.

REFERENCES FOR TEACHERS

Texts previously suggested.

CLEAN WATER AND HOW TO GET IT by Allen Hazen. Price, $1.75. New York: John Wiley & Sons, Inc., 1914.

COMMUNITY HYGIENE by Dean Franklin Smiley and Adrian Gordon Gould. Price, $2. New York: The Macmillan Company, 1935.

PURE WATER, THE BEST OF ALL DRINKS by George C. Whipple. Revised by John F. Norton. Price, 10 cents. Chicago: American Medical Association, 1931.

SUGGESTED PROJECTS

Draw a glass of water from the tap. Is it clear? Is is without color? Does it stain the plumbing fixtures? Is it cold? If all these questions are answered satisfactorily does that prove the water is safe?

Find out what your city does about water supply. Where does it come from? How pure is it originally? What purification methods seem desirable in view of its source? What methods are applied? What methods are not? Why?

Visit the water pumping station and purification plant.

How many wells are there in your community? Do they all fulfil the requirements previously set forth?

Get a copy of the regulations about garbage in your community. Let each member of the class inspect one alley two blocks long and report on how the regulations are being carried out.

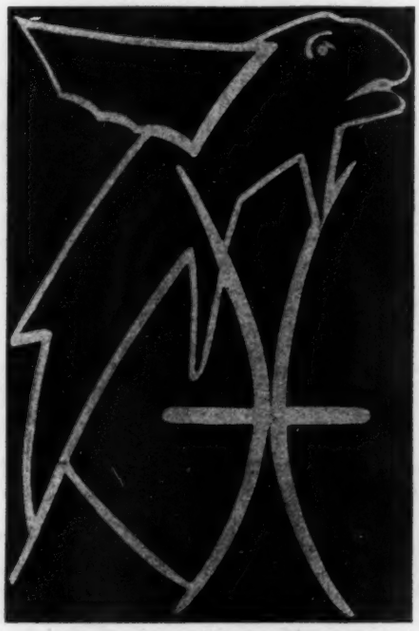
Observe the garbage trucks or trailers. Are they waterproof? Have they covers? Do they smell bad? How often do they collect?

Visit the place where garbage is finally disposed of, and make a report on how satisfactory the method is.

Discover how and where your community disposes of its sewage. Make a survey of the community, and find how many houses are still not equipped with modern plumbing even though sewer pipes are in the streets.

Visit the disposal station, and learn how sewage is handled.

March 9: Protecting Perishable Foods.—Food, so necessary to the life, growth and nourishment of man, may also be a source of danger. This may come about in four principal ways:



1. Articles closely resembling food may be poisonous; for example, certain kinds of mushrooms.

2. Food may become spoiled by fermentation and contain irritating substances; for example, certain spoiled bakery goods.

3. Food may become infected with disease germs, which may not even spoil it enough to be noticeable, as the trichinae in pork.

4. Food may contain poisons introduced by accident or incidental to some process of manufacture.

It is necessary to guard against all these dangers. A more complete list of possible dangers is as follows:

1. Aside from poisonous mushrooms, eaten in the belief that they are the edible variety, certain roots, stems, leaves and fruits are dangerous to eat. The leaves of the rhubarb, of which the stems are perfectly good to eat, contain oxalic acid and may cause poisoning if eaten in sufficient quantity. The roots of certain garden plants, especially monkshood and gladiolus (a bulb) are not edible; they contain poisons. The safe thing to do, of course, is never to eat roots, plants, berries or any food with which you are not perfectly well acquainted. Mushrooms should be purchased from growers. Kind friends who donate them on return from visits to the country should be thanked graciously—but their gifts *should not be eaten.* This is not something the community can do for us, except to keep pedlers of gathered mushrooms from selling them in town.

2. Spoiled foods may contain irritating substances. This is true especially of fats, which when rancid contain irritating acids. It is also true of decayed or otherwise spoiled vegetables and meat. The community attempts or should attempt, through inspection of foods offered for sale, to prevent the sale of spoiled foods which may make people ill. Of course, foods may be good when purchased and may then spoil in the home. No food should ever be eaten if there is the slightest suspicion as to its spoilage. It is cheaper to waste food than to incur illness or worse.

3. Perhaps the most dangerous foods are those which are infected but not apparently spoiled. Several classes of these foods which commonly cause illness are as follows:

(*a*) Bakery goods with cream fillings. These are worst in hot weather. The filling is first mixed and then set aside to ripen; unless it is carefully covered at this time

(Continued on page 258)

SCHOOL and HEALTH

Conducted by J. MACE ANDRESS, Ph.D.
67 Clyde Street Newtonville, Mass.

BUILDING THE HEALTH CURRICULUM IN THE HIGH SCHOOL: VII

THE FACULTY of the Queenstown High School in its conferences on health education is grappling with two problems: What provisions is our school making for the health education of our pupils? What additional opportunities for health instruction and training are available?

As usual the principal, Mr. Richards, opens the meeting. Again let us listen in.

MR. RICHARDS: As we proceed in these conferences it is clear that every school activity is in some way related to problems of healthful living. Today we are going to discuss the place of our high school clubs in the promotion of good health.

As you all know we have a large number of these clubs, such as the Dramatic Club, Art Club, Nature Club, Music Club, Crafts Club and so forth. Some of us may be vague as to the outcomes we hope to achieve through these channels. Mr. Waldron, our associate principal, is especially interested in these organizations. He will open the discussion.

MR. WALDRON: I am as enthusiastic about our club work as I am about the regular work of the school—and possibly more so. In our regular courses there is little chance for most pupils to cultivate hobbies. Our clubs satisfy this need. Children in these clubs are engaging in varied activities such as soap carving, sketching, block printing, building small telescopes and bird houses and radios, cooking, developing hobby scrapbooks, making musical instruments, organizing an orchestra and making collections of stamps, plants and books. Those of you who have directed one of these clubs know how tremendously in earnest the boys and girls are in their club activities.

MR. SANFORD: I thoroughly approve of our clubs, but I am not certain that I understand their value in promoting good health. I suppose you are thinking primarily of mental health.

MR. WALDRON: Precisely. Every wholesome interest we have makes life more satisfying, more worth living. People who have a variety of interests, so psychiatrists tell us, are less likely to have nervous breakdowns. If they do, when they are called on to face some misfortune, they recover more rapidly than those who have lost their zest in living.

All of you are familiar with occupational therapy. It concerns itself with teaching the mentally ill to use their hands in creative work. It frequently restores patients to health. The development of hobbies in our clubs tends to make occupational therapy unnecessary.

MISS PHILLIPS: In my work as a visiting teacher I find that since our school clubs have started, it has been easier to keep certain pupils in school. Truancy is less common. The children do not want to miss their club work. Often the cultivation of a hobby leads to a renewed interest in their regular classwork.

I understand that we are to have a hobby show at the end of the year. This will be stimulating for club members during our school year and it will be one way of getting parents interested in our school. Some of them may also see their own children in a better light.

MISS ROGERS: Do you think, Mr. Waldron, that the depression is primarily responsible for this interest in leisure time activities?

MR. WALDRON: Yes, without doubt the financial depression influenced this movement. The increasing amount of leisure is also making its demand. But then if there were no depression and the hours of labor were the same there would still be the need of leisure time activities. I believe the cultivation of hobbies in our schools has come to stay just as much as the study of algebra and poetry.

To Contributors:—The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of HYGEIA, *67 Clyde Street, Newtonville, Mass.*

DR. THOMAS: I think there is another value to this club work which has not yet been mentioned. I refer to its value as a cooperative enterprise. Modern education in a democratic society demands that children learn how to get along together in some common enterprise. This is necessary for a democratic society.

Mental health also points out the need of such cooperation. The individual who cannot get along well with his schoolmates is likely to withdraw from others and develop a sense of inferiority not conducive to self reliance and optimism.

MR. RICHARDS: The club directors have planned to promote vacation hobbies. If we can help children to continue working at their hobbies during the summer vacation months the vacation may prove to be highly recreational and educative. Perhaps Mr. Waldron may tell us something about this new plan.

MR. WALDRON: This is quite exciting. On the basis of what we have learned about hobbies during the school year and from the work of summer camps we are making definite plans to promote vacation hobbies. We have just gotten out a bulletin of suggestions. There is a copy for each of you. This bulletin offers literally hundreds of ideas on vacation hobbies. In the fall we expect to have an exhibit in our auditorium of what children have done.

MISS KENNEDY: Nothing has been said about the Health Club. Its membership is made up of pupils who wish to know more about health. This club has listed books and pamphlets which it believes the school should purchase for the library. It has visited state, county and city institutions concerned with health. Last week a visit was made to the state laboratories to find out how smallpox vaccine is made. As the director of this club I am trying to get every member to conserve and improve his own health.

MR. RICHARDS: Every conference seems more important than the last. Our high school clubs are a regular part of our curriculum. Each pupil

elects work in a particular club for which school credit is given. We have heard enough this afternoon to realize that children are hungry for such activities. Through them they are cultivating wholesome interests and attitudes, learning group cooperation and finding life more satisfying mentally and physically.

ALL IN THE DAY'S WORK

MARY B. RAPPAPORT
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Again Miss Rappaport takes us with her on her daily tours through the schools. This time we find an active mothers' meeting in progress. It suggests friendly cooperation between teachers and parents—a necessary procedure if the health of boys and girls is to be promoted. What is your school doing to enlist such cooperation?

AS I entered the schoolroom, I found the children's mothers bustling around. The teacher introduced me to each one. "We are just country folks," they said. They were so genuinely friendly, it was a treat to be with them.

The teacher spoke up, "You remember we decided to have a question box this time for the supervisor to answer. Now is your chance to ask your questions. Here are pencils and paper."

A little hesitation, a few minutes of silence, then pencils scratched over the paper, and we were ready to begin.

"What makes my 3 year old girl jealous of her older sister, who is 8?"

"Why can't a child sit still?"

"Should we punish children, and if so, how?"

"What should we do with a child who does not eat at mealtime?"

These were important problems, and all the group realized it—first one person trying to help with her experience, then another and another, while all the rest listened intently.

One mother, who was the last one to come, sat apart, not joining in the discussion. When the talk centered about eating habits, I happened to look in her direction. She was bursting with something to say. Just a little encouragement, and she bubbled forth. She and her husband were so anxious to do everything that was right for their boy, an only child. She was worried because he didn't eat much at his evening meal. "Yes, he has a good appetite at other times."

Suggestions were made by several in the room. Perhaps he wasn't hungry in the evening, as she said

he had dinner at noon. Of course, his father needed a large amount of food after working hard all day, but the boy should not be expected to eat another large meal.

As I looked at the eager, earnest, willing faces, I thought, "What a wonderful chance the children in this community have with such splendid cooperation between the mothers and teachers."

BODY BUILDING AND REGULATING FOODS

Iron and Iodine

ETHEL AUSTIN MARTIN
Director, Nutrition Service
National Dairy Council

In a recent book a prominent psychologist writes a chapter on "The Chemical Self." It is a fascinating subject. Who would have guessed a few years ago that a little more or less of iodine or iron or other chemicals would have so much to do with intelligence, pep and good health? Are you teaching your pupils to eat foods that supply the proper minerals for the body? Mrs. Martin outlines here a teaching program for children at different age levels.

IRON and iodine are two mineral elements which, like calcium and phosphorus, which were discussed in my article last month, perform essential building and regulatory functions in the body. Unlike calcium and phosphorus, however, iron and iodine do not occur in combination in the body, nor are their functions closely interrelated. Each therefore will be considered separately in the following discussion.

Iodine

Most of the iodine in the body is concentrated in the thyroid gland, which is located at the base of the neck. The quantity present, although only $\frac{1}{3,000,000}$ of the body's weight, is essential for growth and health throughout life. An iodine deficiency causes simple goiter. The deficiency occurs chiefly in regions where water and soil are poor in iodine, so that drinking water and foods grown there are lacking in this element. These regions are either far from the sea or sheltered by mountains from the beneficial sea spray, which is rich in iodine.

It was long since discovered that just a trace of iodine in the food or water supply would prevent simple goiter. Scientists now seem to agree that iodized salt can be made a satisfactory means of supplying the nutritional need for iodine in goitrous regions. When no such dependable source of iodine is available in goitrous territory, the iodine content of foods must be considered. In general, sea foods, such as oysters and clams, are the best sources of iodine. Vegetables grown on iodine-rich soil and milk from cows fed on iodine-rich feeds are also good sources. Food products are often shipped into goitrous regions from iodine-rich territories.

Iron

The body of a full-grown healthy person contains less than one tenth of an ounce of iron, about the weight of one cent, the greater part of which is concentrated in the blood. Iron is combined with copper and other substances to form hemoglobin, the red coloring matter of the red corpuscles of the blood. This process takes place largely in the marrow of the bones. Hemoglobin is an essential part of each of the countless red blood corpuscles which carry oxygen to the innermost cells of every organ and tissue. In turn, it carries away from the cells the waste product, carbon dioxide. Iron is also an essential part of every living cell, helping to carry on the vital functions of the cell.

An insufficient amount of iron in the body results in the condition called nutritional anemia—either fewer red blood corpuscles or corpuscles containing less hemoglobin. Thus the blood carries less than the normal amount of oxygen to the tissues, and this lessened supply of oxygen results in a slowing down of all body functions.

Iron-Rich Foods

The best sources of iron are egg yolk, lean meat (glands and muscle), legumes, green vegetables, certain fruits and whole grains. The foods most valuable in preventing

nutritional anemia contain both copper and iron. Fortunately, however, the foods rich in iron are, for the most part, likewise rich in copper.

A recent survey made of 20,000 family diets in the United States showed that calcium and iron were the mineral elements most often lacking. It would seem wise therefore to familiarize oneself with foods which are dependable sources of iron. Table 1 shows the relative iron values of a few common foods, expressed in units.

This list shows that iron is distributed in relatively small amounts in a number of foods and that some of the richer sources are foods not usually eaten every meal and not always every day. It is apparent therefore that each day's meals should include several foods known to contain a fair amount of iron.

Daily Iron Requirements

From 8 to 15 units (milligrams) of iron daily are sufficient to build good red blood and to supply other body parts and processes for children of school age. On approaching adolescence they should receive the larger amount. Adults require about 15 units (milligrams) of iron daily.

Following the plan of previous articles, let us now see whether a girl of 10 years, requiring about 12 units of iron daily, can obtain the desired amount of iron by including in her meals the "protective" foods—milk, vegetables, fruits and eggs in the amounts usually recommended. Using the accompanying list of iron values as our basis, we obtain the results shown in table 2.

TABLE 2.—*Suggested Daily Iron Intake for Girl, Aged 10*

Foods	Amounts	Iron Units
Milk	1 quart	2⅔
2 Vegetables		
Green leafy	½ cupful	1⅓
Root	½ cupful	½
2 Fruits		
Citrus	1 medium	¾
Dried	½ cupful	1
Eggs	1	1½
		7¾

It is evident at once that the "protective" foods, taken in the quantities specified, do not supply adequate amounts of iron. This may seem surprising until it is remembered that several of the foods commonly added to round out meals are ones which contribute iron. For example, a serving of meat and two servings of whole grain cereal or bread bring the total units to 12. This exercise serves only to emphasize, however, what has been suggested previously; namely, that meeting the daily iron requirement must not be left to chance.

TABLE 1.—*Iron Values*

Foods	Servings	Calories	Iron Units*
Beans, dried navy	3 tablespoonfuls dry	150	4½
Beef, all lean	4⅝ by 4½ by ⅝ inch	100	2¾
Spinach	½ cupful	25	2⅔
Egg	1	70	1½
Wheat, entire grain	⅓ cupful dry	100	1½
Potatoes	1 medium	100	1½
Kale	½ cupful	25	1⅓
Oatmeal	⅓ cupful dry	100	1⅓
Prunes	2 large	100	1
Orange	1 medium	75	¾
Milk	1 cupful	168	⅔
Cabbage	¼ cupful	25	⅓
Carrots	¼ cupful	35	⅓
Apples	1 medium	80	⅓

* The term "unit" is used here in an effort to direct attention to relative iron values in a simple way. The value of a unit is explained later in terms of daily iron requirements.

Much has been said recently regarding the availability of iron from various foods. The iron in whole grain cereals and milk appears to be in a form easily utilized by the body. The iron in spinach is less useful to the body than the iron in some other green vegetables tested thus far.

Application to the Classroom

Dr. Sherman of Columbia University, New York, points out that vegetables are especially important as sources of iron because of their low calorie value. They can be added to the diet without replacing the staple foods of high calorie and protein value and without making the total food consumption excessive. It is desirable that children learn to know and like vegetables from their earliest years. It is a suitable time therefore to introduce a vegetable unit at this point.

A Unit on Vegetables

Children in the lower grades can learn to know the different vegetables from seeing them growing in gardens and by studying pictures of them. They can have a school garden and a garden of their own at home. They should be encouraged to taste and to enjoy as many as possible of the vegetables they can identify. In this way they will enlarge their vegetable acquaintance and need never fear being served one they do not like. Children will enjoy checking themselves to see that they have at least one or two vegetables daily besides potatoes, preferably two, and that vegetables are frequently served raw.

Older children can learn something of the importance of vegetables as foods in a well balanced diet. They will be interested in the fact that green leafy vegetables and yellow vegetables are superior in food value to other kinds; likewise that raw vegetables furnish the body with a nutritive quality which is largely lost in cooking. A unit on vegetables can be correlated with geography, nature study and home economics. Planning meals which include vegetables, learning to know and like many different kinds of vegetables and above all including vegetables every day in lunch or dinner, or both, accomplish the desired result.

There is a temptation among high school boys to regard meat and potatoes as the essential elements of their main course at dinner. Girls of high school age are apt to pick daintily at a salad but fail to eat really sizeable portions of the common vegetables such as greens, cabbage and carrots. Both boys and girls are inclined to feel that they don't "like" vegetables. Vegetables often go begging in the high school cafeteria. One enterprising lunchroom manager taught her clientele to like vegetables by slipping samples of raw or well cooked vegetable on their plates until they began asking to buy them. Such a project would be desirable particularly if it could be correlated with classroom work in foods, nutrition, health or other subjects in the curriculum.

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SEEING IS BELIEVING

MARJORIE VAN HORN
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CAMDEN, N. J.

This adage is as true in health education as in other types of teaching. Miss Van Horn offers us in the following article numerous suggestions as to where films and other visual material may be secured.

AT PRESENT there are many sources from which free visual aids for teaching may be obtained. These cover all phases of health work from the dramatized story for the lower grades to the more complicated explanations of bacteria and health seeking agencies for the upper classes.

(Continued on page 280)

TO AMERICA'S SCHOOLS—YOUR HEALTH (Continued from page 254)

it may be infected by mice. In certain cases, infection has been introduced from the hands of the baker who has had an infected finger or a boil. The germs grow in the filling and make it highly poisonous without affecting its taste. Some of the better bakeries discontinue this class of goods in summer.

(*b*) Canned goods, especially canned vegetables, are susceptible when prepared at home, if infected with a germ known as the botulinus or sausage germ, because this type of poisoning was first recognized in sausage. It produces poison only when it can grow inside a can or a sausage casing without oxygen; the poison is tasteless and odorless, and the food does not seem spoiled, except that there is gas formed which may blow up the sausage, swell a tin can or escape with a hiss when the can is opened. Foods that are under suspicion should not be tasted; the poison is so powerful that one taste may kill. Protection in canneries and stores is to discard all "swells," that is, cans which bulge. In the home, protection is to boil canned goods for twenty minutes, which destroys the poison.

(*c*) Fresh meats are often infected with a germ which is a cousin to the typhoid germ; it is called paratyphoid A. Cooking destroys it. Cooking, if thorough, also destroys other dangers from fresh meat, including the trichinae, or pork muscle worm, the various tapeworms which may infest beef, pork or fish, and the germs of tuberculosis and rabbit fever. Meat, especially pork, should be cooked until all redness disappears.

(*d*) Poisons introduced into foods in the process of production are mainly lead and arsenic, from sprays used to protect the growing fruits against insect pests. The community should enforce washing of fruits before sale, and the home should enforce peeling or at least another thorough washing. The stem and flower ends, in which poison may lodge, should be cut out with a sharp knife.

Many cities maintain food inspection services, which have for their purpose the protection of fresh foods against infection and the protection of the public against the sale of any foodstuffs which may be detrimental or undesirable. The milk inspection has already been discussed. Inspectors of meat and fresh food may or may not be the same men who inspect milk, depending on the size of the community; both staffs are often under one supervisor, probably a veterinarian, because of his familiarity with animals. Food inspectors often deal also with adulterations of food, such as water in milk, the illegal use of preservatives, or too much cereal in sausage, as cereal holds water and makes the product heavy. They may or may not deal with short weight and misbranding of foods.

Federal inspection of meat food products is maintained at larger packing plants and is required for food shipped from one state to another.

Some communities require medical examinations for food handlers. There is a difference of opinion about the value of such examinations. They surely prevent some persons with tuberculosis or other chronic conditions from handling food. They do nothing to protect food against acute infections which may develop and be gone between two examinations six months or a year apart. If examinations are accompanied by teaching plans to impress food handlers with the importance of great care in matters of personal cleanliness they are more effective. Supervision is also of greatest importance.

Cleanliness of dishes in public eating places is desirable and may be important in preventing the spread of disease. It is difficult to say how much disease is conveyed through eating utensils in public places. All dishes, especially those which touch the mouth, should be washed and sterilized before being used again.

REFERENCES FOR TEACHERS

Food and Beverage Analyses by Milton A. Bridges. Price, $3.50. Philadelphia: Lea and Febiger, 1935.

Food Products by Henry C. Sherman. Price, $3. New York: The Macmillan Company, 1933.

SUGGESTED PROJECTS

Get a copy of your community's laws or regulations about foods other than milk. Get a copy of the meat inspection regulations of the U. S. Bureau of Animal Industry. Get the state laws on the subject.

Visit a canning factory.

Visit a meat slaughtering and inspection plant.

Visit any convenient local or nearby place where some perishable food is manufactured. Note cleanliness of workers and surroundings, especially the following:

Is food handled without touching the hands of the workers, or if not, are they gloved?

If the workers are women, are they provided with means of confining the hair; that is, nets or headbands?

Do they wear clean uniforms of a color which shows soiling readily?

Visit the washrooms for both men and women. Are they clean, and do they have plenty of soap and towels and reminders to use them before leaving the room?

Does the company have medical examination for food handlers?

Is the product wrapped by machine?

Visit several classes of restaurants, including a drug store luncheonette, a barbecue stand by the roadside, a hamburger "tower," a cafeteria and a large hotel dining room. Ask to be allowed to see the kitchens. Note the following:

Are chefs and waiters clean, and if women, is their hair confined in nets or bands? Are their clothes clean?

Are there plenty of washing facilities?

Are dishes washed in hot water, rinsed and dried, or passed through a mechanical sterilizer or mechanically rinsed with boiling water?

Do waiters keep their fingers off the parts of dishes and utensils which touch the mouth? Do they put the butter dishes on top of the drinking glasses? Do they moisten their fingers with their tongues when they turn over a page of the menu or write the check? Are clean dishes kept protected so they will stay clean?

March 16: Keeping Books on Health.—In order to know what to do about improving the health of the people, the health officials must know a number of things about them. Here are the principal items in the keeping of books on health, and the reasons for them:

1. How many people are there in the community? Health officials must know, in order to know what the community ought to be spending for health protection; one dollar per person per year is about the minimum, but few communities spend that much. Also, the number of people living in a community is the basis for most of the figures the official will have to compute. Suppose there were 500 deaths in a community in a year. The situation would be serious if it were a community of 5,000 people, fairly normal in a community of 50,000 and too good to be true in a community of 500,000. For convenience in comparing communities of different size, deaths are always computed as so many for each thousand persons. Because diseases are more numerous and to avoid difficulty with fractions, they are estimated at so many per hundred thousand. Births are figured per thousand persons but baby deaths per thousand babies born alive during that year.

2. What are the ages of the people in the community? That makes a difference. Suppose a community happened to be composed mostly of old people. We would not expect many contagious diseases of childhood there nor many babies born. But we would expect a great many of the diseases of older people, such as heart disease, kidney disease, cancer, diabetes and high blood pressure.

3. What are the nationalities of the people? Jews, for example, are very liable to have diabetes; Scandinavians are more susceptible to tuberculosis. Dietary habits and racial customs are different. Also, it makes a difference with publications and radio talks about health; there is not much use in talking Polish where there are no Poles, but it is important to do so where there are.

4. What do people die of in the community? If there are no deaths from malaria it would be foolish to start a big campaign to get rid of the breeding places of the malaria mosquito. If measles or diphtheria or whooping cough, or diabetes or cancer or having babies are important causes of death, that is what the community ought to be spending its money and effort and time to improve, not something that is not even happening.

5. What is causing people to be sick, and where, and why? Is there smallpox? The answer is vaccination. Is there diphtheria? Toxoid must be given to babies. Is there scarlet fever? Quarantine, watching for mild missed cases, Dick testing and perhaps some immunizing must be done. Or is it heart disease? Well, that may be nothing to worry about (review the lesson on healthy hearts). If the health officer is to know what diseases are about, they must be reported. People do not like to be reported. Doctors do not like to report their patients. But it is the law. The health officer and the courts have no choice but to enforce it. The doctors have no choice but to obey it, if they are conscientious. And who wants a doctor that is not? Patients blame and often penalize a doctor who reports them in accordance with the law; they quit him and go to some other doctor who will not report them. This is most unwise as well as unfair. It is unfair to the honest doctor who does his duty. It is unwise because the honest doctor who is honest about reporting is a better man to entrust with responsibility for your health than the man who is willing to buy your good will at the expense of breaking the law and possibly causing dangerous disease to spread.

Health officers get their information in the following ways:

1. Every ten years the United States government, through a special Bureau of the Census, actually counts the people by cities, states and counties.

2. There are some states that conduct a census within their limits midway between two federal censuses. Therefore such states can give fairly accurate figures at five year intervals rather than every ten years. For other years than census years, populations are computed in various ways:

(*a*) By adding births and subtracting deaths.

(*b*) By comparing the number of buildings connected with water service for each thousand of population in census years and then figuring noncensus years on the same basis.

(*c*) By computing what percentage of the population, in U. S. census years, consists of school children and figuring the total population in noncensus years by counting the school population and using the same percentages as for census years.

All these methods except actual counting are estimates, but they are close enough for the average community. If a city should have a sudden growth, as Detroit did with the growing up of the automobile industry, estimates are no good. For opposite reasons, a city might suddenly lose population, as many did during the depression, and then estimates would also be no good. Neither would an estimate be any good if hard times compelled many people to double up in living quarters and thus reduce the number of water connections. Telephones and electric light service connections, because they are less universal than water connections and because they change more with prosperity or depression, are not suitable bases for estimating population.

3. Whenever a birth or a death occurs, it must be reported to a local official known as the registrar of vital statistics, who may be the city or county clerk or the health officer. These records are available to the health officer. On the death certificate appears the cause of death, which gives the health officer information about fatal disease in his community. If a person dies of unknown cause, either the coroner, the health officer or some other official designated by law must find out the cause and sign an appropriate certificate. Births must be reported by the doctor or midwife in attendance, or if none, by the parents or any other person who has the requisite knowledge of the event. Birth reporting is important because the record may be called for in order to establish any of the following facts:

(*a*) Who your parents were, in case of inheritance questions.

(*b*) When you were born, in case you want to get married, vote, run for office, quit school, get a job, register under social security laws or collect old age pensions.

(*c*) Where you were born, in case you want to get a passport for traveling or in case you get into difficulties in foreign countries and claim the protection of the United States.

It is a wise precaution for every person to get a certified copy of his birth certificate and keep it handy. If the birth has not been reported it can still be recorded by filing an affidavit from any person who knows the facts and will swear to them. In case no birth record has been filed and none can now be filed, a baptismal record from a church is the best substitute. An entry in a document such as a family Bible is also often accepted as proof of birth.

4. Diseases are reportable, according to different laws in the different states, for purposes of quarantine or other control, or so that their prevalence can be studied. Many important diseases, especially cancer and diabetes, are not reportable; therefore the actual number of cases existing can only be estimated.

REFERENCES FOR TEACHERS

VITAL STATISTICS by George C. Whipple. Second edition, revised. Price, $4. New York: John Wiley & Sons, Inc., 1923.

SUGGESTED PROJECTS

Find your own birth record, or write for it to the registrar of the place where you were born. If

there is no record, have one filed by affidavit at once.

Try tracing your family genealogy through birth records and books on this subject.

For a city of 50,000 people, figure out the following:

1. If there are 1,000 births and 500 deaths in a year, what will be the increase in estimated population at the end of the year, assuming that people moving in and those moving away balance each other?

2. What would the estimated population be at the middle of the year?

3. Using the estimated midyear population as a basis, assume that the following diseases caused the following deaths, and write opposite each disease the proportion or rate per hundred thousand of population:

TABLE 1

DISEASE	DEATHS	NO. PER 100,000
Heart disease	178	.....
Cancer	103	.....
Apoplexy (stroke)	44	.....
Pneumonia	42	.....
Kidney disease	32	.....
Tuberculosis	24	.....

Now get the report of the United States Census Bureau out of the library, and compare these with the rates in several cities of about that size and also with rates in your own community (get these from the health officer or the state board of health in your community). Are these rates in about the order and about the size which are currently prevalent?

Suppose 1,166 babies are born in the community. On the basis of the midyear estimated population you have computed, what is the birth rate per thousand population? Suppose forty-three of these babies died before they reached 1 year of age. What would be the basis for computing this rate? What would the rate be? From statistical sources for your community and state, make comparison. Is this rate a low rate? Moderate? High?

Find out how many cases of each of the diseases in table 2 were reported in your community last year and how many persons died from each; then compare those figures with the standards for satisfactory reporting which have been established.

March 23: Catching Disease from Animals.—As man calls on animals for their labor, for their bodies for food, their skins for warmth and their company for his pleasure, so animals call on man to share certain of their diseases. In medical research, animals have given much information of use to man, and through the same channels, man has given much of use to animals in the prevention of animal diseases, many of which are common to man also. Not all animals can take all diseases of man, nor does man take all animal diseases, but there is no disease of man to which at least one animal species is not susceptible.

The principal animal diseases for which man must look out are the following:

1. Tuberculosis, which man may get from the milk or the meat of cattle or from the meat of other animals. Protection to man is accomplished through tuberculin testing of cattle, which also benefits the herd through the sacrifice of diseased animals, plus pasteurization of milk.

2. Undulant fever, a disease due to the same germ which in cattle causes the loss of unborn calves. Man takes the germ into his body in unpasteurized milk. The remedy is a herd test for cattle, similar in principle to the tuberculin test, and weeding out those affected, plus pasteurization of the milk. Goats imported from the Island of Malta are responsible for Malta fever, which is the same as undulant fever.

3. Tularemia, or rabbit fever, a December disease, because that is rabbit hunting season. Sluggish bunnies without enough pep to run away are usually found to be sick with this disease, which reaches man through the skin by punctures from the sharp rabbit bones, sustained while cleaning the rabbit preparatory to making him into a pie. Prevention consists in handling wild rabbits with gloved hands only and burying at once any which are not normally lively before being shot. Dogs get the disease and should, therefore, not be allowed access to the carcasses of sick rabbits. Cooking renders the meat safe to eat. In rabbit season it is safer to do all rabbit skinning and dressing with sturdy rubber gloves. Rabbits with spotty looking livers should be suspected. The disease in man is long drawn out and tedious but not usually fatal. It leaves permanent traces in the blood. Many butchers have had the disease.

4. Rabies is a serious disease primarily affecting members of the dog family and also cattle, horses and man. The germ, which has not been identified, lives in the saliva of the rabid or mad animal and reaches the body through the bites which break the skin. This applies both to animals and to man. There is no cure for the disease, once it has started. Animals infected with it must be destroyed. Man can be protected by means of the Pasteur treatment, which consists of fourteen injections of a special preparation devised by the French scientist Pasteur; hence its name. It is important that it be given whenever there is suspicion of the possibility of rabies in an animal, usually a dog, which may have bitten a man. When such a bite has occurred the animal should not be killed immediately unless to do so is necessary to save others from attack. Instead it should be watched for signs of disease. If the animal lives ten days it did not have rabies. If it dies the head should be sent to the nearest state laboratory for examination. The evidences of rabies can be found in the brain *if they have been given time to develop.* It is vitally important that animals suspected of rabies shall not be killed too soon and that when they are killed the brain shall not be injured. If diagnosis is impossible because the animal has been killed too soon or without regard for preserving the brain the Pasteur preventive treatment must by all means be given. Vaccination of dogs against rabies is not satisfactory. Dogs should be kept on leash, except where they have plenty of room to run. Muzzles are inhumane and in some instances cruel; besides, they render a dog helpless against attack.

5. Dogs and cats have been accused of spreading disease by mysterious means. The idea seems to have been that disease germs attach themselves to the fur and are thus transmitted from place to place. The possibility of such transmission cannot be denied, especially with relation to skin diseases. There is, however, no satisfactory evidence that dogs and cats often carry the ordinary contagious diseases of human beings from one to another. Human beings

(Continued on page 283)

TABLE 2

	CASES	DEATHS	RATIO OF CASES PER DEATH	CASES PER DEATH STANDARD
Diphtheria	.....	.....	.....	10
Measles	.....	.....	.....	120
Scarlet fever	.....	.....	.....	100
Whooping cough	.....	.....	.....	50
Tuberculosis	.....	.....	.....	New cases should be twice tuberculosis deaths; known cases should be five times tuberculosis deaths.

New Books on Health

THE LITTLE THINGS IN LIFE

By Barnett Sure, Ph.D. Cloth. Price, $2.50. Pp. 340. New York: D. Appleton-Century Company, 1937.

IN THIS BOOK vitamins, minerals and hormones are discussed for the layman in nontechnical fashion. The chapters on the vitamins occupy two thirds of the volume, and the treatment is much like that in the earlier book by the same author, "Vitamins in Health and Disease." The effects of both complete and partial deficiency of the various vitamins are described, and a condensed but interesting history of their discovery has been included. Many recent contributions to the vitamin literature are referred to, but unfortunately without indication as to whether the observations reported are well established.

A single chapter on the rôle of the hormones treats of insulin, the thyroid, parathyroid, adrenal, pituitary, thymus and pineal glands, the sex hormones and those regulating digestion. This brief survey may be of interest to sufferers from glandular disturbances who have no real conception of the functions of hormones and who would therefore appreciate some explanation of the source of their difficulties.

The fifteen pages devoted to "minerals, anemias and goiter" give a very inadequate picture of the place of the mineral elements in nutrition, and it is doubtful whether the sections on the anemias will be especially enlightening. The similarly brief treatment of hay fever and asthma seems hardly likely to afford the intelligent layman information which he does not already possess.

A short chapter on ferments and indigestion includes a few suggestions regarding nervous indigestion, outlines the Alvarez "smooth" diet for such cases and repeats Bogert's rules for promoting good digestion.

MARY SWARTZ ROSE, PH.D.

KINESIOLOGY OF CORRECTIVE EXERCISE

By Gertrude Hawley, M.A. Price, $2.75. Pp. 268. Philadelphia: Lea & Febiger, 1937.

THIS is a practical book for all those who specialize in the field of corrective exercise. Part 1 presents facts and theories concerning the structure and functions of articulations which have special significance from a corrective standpoint with reference to some of the orthopedic conditions usually encountered. Part 2 presents kinesiologic analyses of corrective exercises dealing with posture and other conditions that require remedial measures. The author is an experienced and successful teacher of remedial gymnastics, and her well written and carefully illustrated text should be useful for students, teachers and physical therapists specializing in the field of corrective exercise.

J. MACE ANDRESS, PH.D.

GETTING READY TO BE A MOTHER

By Carolyn Conant Van Blarcom, R.N. Cloth. Price, $2. Pp. 305. New York: The Macmillan Company, 1937.

THIS book is intended as a composite of advice about the simple, everyday things which doctors give to the normal woman during pregnancy, as well as the facts which the mother needs in properly caring for the infant.

Many mothers have profited by books of this type, since they dispel misinformation and make it easier for the mother to follow the physician's instructions.

Well written in simple language and profusely illustrated, this work on prenatal and infant care takes its place as one of the best of the large number of books in this field.

WILLIAM I. FISHBEIN, M.D.

CHILDREN IN THE FAMILY

By Harold H. Anderson, Ph.D. Introduction by George D. Stoddard, Ph.D. Cloth. Price, $2. Pp. 253. New York: D. Appleton-Century Company, 1937.

IN HIS preface, Professor Anderson states, "It is the hope of the author that this book will in a small way lead parents to a better understanding of the child, of each other, and of themselves and will point out to them new ways of discovering common purposes underlying apparent differences.

"The chief contribution to the child that is made by psychiatrist, psychologist, psychiatric social worker, or visiting teacher . . . is a fundamental, profound, and sincere respect for the individual which few children find at home, at school, or in the neighborhood. This profound respect for the individual bears no copyright. It has no patent rights. It is not a scientific technique. It does not belong to psychiatry and psychology alone. Respect for another individual is essentially a point of view. With it the sciences of psychiatry and psychology become helpful. Without it all human sciences are futile. Parents can and must capture some of this point of view."

The book itself is a simple, direct and readable consideration of the translation of this point of view into action in the management of young children, with many illustrations taken from life. The problems with which the author is concerned are the ordinary problems common to most children.

The discussion of family relationship is excellent, and together with the discussion of emotional behavior and habits, which is also good, comprises half the book.

The last half of the book is concerned with mental and motor development, nutrition, clothing and health. In some of these chapters the author is obviously less at home than in the first part of the book. The chapter on clothing is useful. More adequate discussions of the subjects of nutrition and health are already available to parents. However, there is a sensible consideration of the psychologic aspects of feeding, a subject which is unfortunately too often neglected in books by physicians. There is an appendix of questions for study groups and an index. This book will more than justify the modest hope expressed by the author.

R. L. JENKINS, M.D.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

PROCEEDINGS OF THE TWENTY-SECOND NATIONAL RECREATION CONGRESS

Paper. Price, $1. Pp. 151. New York: National Recreation Association, 1937.

THIS pamphlet gives a report of the Recreation Congress of 1937. For one week, representatives of the various branches of government, industry, religious groups, schools, social and civic agencies met and discussed the various problems of meeting the recreational needs of America. Abstracts, excerpts and summaries of some of the principal addresses are given for those interested persons who were unable to attend the congress.

PAUL A. TESCHNER, M.D.

PUBLIC MEDICAL SERVICES

A SURVEY OF TAX-SUPPORTED MEDICAL CARE IN THE UNITED STATES. By Michael M. Davis. Cloth. Price, $1.50. Pp. 170. Chicago: The University of Chicago Press, 1937.

THE first sentence states that "Public health work had its origin in the endeavor to control pestilence; public medical services developed out of man's attempt to combat poverty." The second clause seems often to be forgotten in the subsequent discussion. Public medical service has been continuously broadened in scope, both as to numbers affected and as to forms of treatment. Various plans for providing home medical care for the indigent during the depression era, and especially that of the Federal Emergency Relief Administration, are discussed. It is noted that there is "an increasing emphasis upon the medical, as distinguished from the charitable, aspect. More and more the sick person is considered as such and the responsibility of the physician is given larger scope by the law and by administrative practice." The general hospital was at first regarded "as a place for the relief of the destitute," but "has become an institution in which medical care, rather than charity, is the first thought." It is concluded "that general hospital care in the United States is mainly provided by voluntary hospitals but that the rôle of governmental hospitals is substantial and increasing." "Hospitals for mental disease constitute the largest group of hospital facilities." These are much overcrowded at the present time and have not entirely escaped from their original aspects of charitable, legal and custodial institutions. The administration of subsidies to hospitals through taxation has not been wholly satisfactory and has led to numerous abuses.

Medical care by governmental agencies is extended to a number

of groups having "some special relation to the local, state, or national government," such as the Army, Navy, veterans, Indians, seamen, prisoners, students and some government employees. The comment on student health services is much more favorable than recent investigations would seem to justify. It is implied that such services provide the students with a defense against quackery and encourage habits of periodic health examination and a discriminating attitude in the selection of medical service. It would be difficult to show that any such results have been produced by student health services.

There are a number of communicable diseases which have been considered of such public health interest as to justify the setting up of governmental institutions concerned with the medical care of such diseases. Tax support "does not necessarily imply the governmental administration of these services," but "may cover payments for physicians and medicines" in private practice.

"Probably the most important single factor in maintaining and improving quality of service is professional participation in determining the qualifications and appointment of professional personnel and in controlling the procedures through which professional service is furnished." There is a recognition of the fact that "a relation of mutual confidence between patient and physician is essential," but it is claimed that "such a relation may exist under any method of payment"—a conclusion which has certainly been frequently challenged.

The final problem is stated to be: "Through what methods and procedures shall there be maintained, under conditions of organization, those human relationships which are necessary to satisfactory and efficient service, on the one hand, and to high professional standards, on the other? . . . The three major problems of relationships are: (1) the relations between physician and patient; (2) the privileges and status of the patient in relation to public medical services, and (3) the relation of the governmental authority to the medical and allied professions."

R. G. LELAND, M.D.

SCHOOL HEALTH PROBLEMS

By Laurence B. Chenoweth, A.B., M.D., and Theodore K. Selkirk, A.B., M.D. Price, $3. Pp. 387. Illustrated. New York: F. S. Crofts & Co., 1937.

THE authors state in the preface of this book that their purpose is "to acquaint students of education, teachers in service, and others interested, with the broad general nature of health problems in school. Its goal is to develop health consciousness among teachers and pupils to as great an extent as possible."

The presentation of subject matter is very formal. It deals with such problems as "The Physical Examination of School Children," "Acoustics and Hearing," "Tuberculosis and the School Child" and "Mental Hygiene." The book is crammed with many facts carefully prepared which should make the book valuable for reference. Students who have not already acquired an interest in health education would hardly find their interest in the health of school children excited. In its subject matter and illustrations the book deals too much with the abnormal and diseased. Instead of developing "health consciousness" one would sooner believe that it would make for "disease consciousness." Although the book professes to be only "an outline of the common health practices in schools" it has almost entirely neglected modern positive health teaching without which the school can do little to encourage a "health consciousness."

J. M. A.

AUTO-CORRECTIVISM

THE PSYCHOLOGY OF NERVOUSNESS. By V. E. Fisher, M.S., Ph.D. Cloth. Price, $3.50. Pp. 337. Caldwell, Idaho: The Caxton Printers, Ltd., 1937.

POPULAR interest in the field of abnormal psychology has been stimulated by the numerous newspaper accounts of suicides, murders and sex crimes. Classes in abnormal psychology are crowded today where they used to include only those students who were compelled to take the course because of some academic requirement. A valuable purpose is to be served by such courses. The perusal of books along a similar line should prove of value to the physician and to the interested layman. Unfortunately it is difficult, not only for the casual reader but also for the trained librarian and even for the physician interested in the field, to find a book which will not prove misleading either because of its oversimplicity or its tendency to delve too deeply into highly theoretical material. The present volume falls between these two criticisms. It oversimplifies certain features of abnormal psychology and adds complexity to others. Dr. Fisher's earlier book, a simple text treating of abnormal psychology, has proved itself to be useful. Briefly, it describes various mental conditions which may well come into the experience of almost any one, be he physician or merely a student of psychology.

The present volume is an attempt to develop an all inclusive explanation for certain types of mental disorders; namely, the neuroses. The neuroses are mild mental disorders characterized by fears, compulsions and sexual maladjustments. Freud, Adler and their disciples have founded a new school of understanding and treatment of these disorders. As Fisher rightly points out, their solutions by no means hold the entire answer to the problem. The difficulty which a person has who is not entirely maladjusted and who is not insane is not easily cleared up. Often the procedure is an expensive one. Unfortunately, sometimes after the expense has been undergone, no cure results. There is no specific treatment as yet in psychiatry for these diseases as there is for the sicknesses which come within the jurisdiction of general medicine.

The text of Dr. Fisher's present sermon is fairly simple; namely, that the symptoms of these neuroses, the fears, the unusual mannerisms, the compulsive movements and the compulsive behavior which the patient exhibits are a tendency on the part of the body, perhaps not adequate but certainly directed toward solving a certain motive. Fisher outlines these motives. He points out that some of them arise from bodily needs such as hunger and thirst. Some arise from racial sources, such as sympathy and sexual desire. Some of them are selfish personality motives such as self assertiveness and egoism. All these were modified by innumerable factors which have been discussed at length by other authors. Such factors are conditioning, overidentification and underidentification and similar psychologic mechanisms. Dr. Fisher discusses at some length some of the cases which he has handled. Unfortunately, in most of the cases he does not demonstrate that he has at his fingertips any new cure resulting from the use of this theory of autocorrectivism. The basic idea of autocorrectivism is not entirely new; it is only new in the interpretation that Fisher puts on it. Freud and Adler, for instance, admit that there is purpose in all the symptoms of the neurosis. Fisher's slant, it must be admitted, can be seen to be slightly different.

The book is not for the casual reader. It does require background. It should be gone through patiently, with understanding and with sympathy. The professional man who studies it, particularly the psychiatrist, will gain something from it. It is not an answer to those who have personal problems. Were one to try to solve these problems by reading a book, this would be the last book that the reviewer would recommend for use as self treatment. The book expresses a new theory or at least a new interpretation, and it needs critical perusal rather than uncritical assimilation. LOWELL S. SELLING.

SAFELY THROUGH CHILDBIRTH

By A. J. Rongy, M.D., F.A.C.S. Cloth. Price, $2. Pp. 192. New York: Emerson Books, Inc., 1937.

THIS book would be an excellent review compend for the medical student facing an examination but is unsuitable for "a guide book for the expectant mother," as its subtitle claims it to be. It contains too much information, poorly selected. Much of it is of interest only to the doctor, as witness two pages devoted to the hardships of the obstetrician in the old days; the expectant mother is not helped by shedding tears for her medical attendant's difficulties. Too many terms are introduced without adequate explanation, such as "coaptation" of a separated placenta; first, second and third "trimesters" of pregnancy and "multipara." There is a glossary, but it does not cover such terms fully enough.

The book gives the impression of being a condensed presentation in textbook style. Too much space is given to a detailed consideration of the mechanism of labor, much of which the expectant mother need not understand, especially if she tends toward the neurotic. The complications, the discomforts, the pains, the loss of attractive appearance consequent on pregnancy are too heavily emphasized. The few illustrations are not well chosen: two of the nineteen are devoted to the details of pelvimetry, one to twins with both heads presenting (a rare anomaly), one to six positions of twins in the uterus (textbook material unsuitable for lay readers), and one mediocre representation of a maternity corset that looks as if it had come from a mail-order catalogue.

It would be difficult to find an illustration less suitable for the manual intended to guide a woman "safely through childbirth" than the picture of the abdominal and uterine incisions in a cesarean section, shown on an undraped nude torso. Extensive discussion of divergent theories of what causes the onset of labor will be small comfort to the expectant mother anxiously awaiting the passage of the last tedious weeks; in many instances such material will serve only to disquiet her. Nothing is to be gained by telling the mother of possible operative emergencies which she may never have to face or by discussing for her the dilemma of the physician making difficult decisions in obstetric emergencies.

The chapter on the menopause, a period which most women approach with dread, has no place in a manual for expectant mothers. Entirely aside from the merits of this chapter as such, which are not greater than those of the rest of the book, pregnancy would seem the least suitable time in a woman's life to remind her of that epoch to which she looks forward without enthusiasm. After enumerating the untoward symptoms of the menopause, without giving the woman much encouragement in what modern medicine can do for her, the author appends two paragraphs of reassurance, including the promise that she can make the menopause "the threshold of a new and fascinating period of life."

This reviewer cannot share the publishers' hope that doctors "will find this a useful and reassuring book to place in the hands of their patients." It makes quite the contrary impression.

W. W. BAUER, M.D.

QUESTIONS and ANSWERS

Overexhaustion in High School Athletic Contests

To the Editor:—What is the effect of overexhaustion on growing boys in high school athletic contests? If an adolescent boy in good physical condition runs so long and so hard that he drops from sheer exhaustion, is it harmful physically? It has been contended that the collapse is a safety valve which protects the heart and prevents its overexhaustion. What is the effect of a strenuous season of basketball competition on the bodies of growing boys, especially the basketball game as now played without the center jump after each goal?

E. L. S., Pennsylvania.

Answer.—A wholesome amount of physical exercise is undoubtedly necessary for all growing boys and girls; but an excessive amount may, of course, be injurious to the human mechanism. Active games, especially when the pleasurable element predominates, are conducive to health and well being. It is conceivable that a long and strenuous training season, with the attendant nervous stress of keen competition and prolonged overexertion, may prove injurious, at least to some of the members of a basketball team.

A careful and thorough physical examination by a physician should always be given to high school as well as other athletes, in order to discover any possible evidence of cardiac or other organic disorder. That a boy may without injury run until he falls exhausted is a fallacious statement. In some cases permanent injury does not seem to follow; but in other cases, damage may certainly result.

Exercise of supreme effort, in which all one's muscular and nervous energy is put forth, is not the best type of occupation for either young or old. All exercise should be well within the capacity of the performer. Since ability differs, the amount taken varies of course with the type of individual.

Basketball is a strenuous game, especially the interscholastic and intercollegiate types. The constant running and sustained action are a severe strain on heart and lungs. If the abolition of the jump from center after each goal tends to make the game more continuous and lessens the short rest periods, it would seem that the rule increases the strenuous character of the game and hence the liability to physical strain on the players.

The National Playground and Recreation Association of New York publishes a number of pamphlets on all forms of play and physical activities generally.

Urination Difficulties in Children

To the Editor:—Ever since my nephew, who is now 17 months old, was born, he has had difficulty in passing urine. The child has some irritations about that part of his body which dry up and try to heal but are forced open each time he urinates, causing him great pain and unnecessary loss of blood. We were told that this was due to his teeth and would eventually disappear. Later we were told that the opening for the passage of urine must be cut larger.

M. M., New York.

Answer.—It is not quite clear just what is meant by "difficulty in passing urine." It seems entirely possible that even though the child is 17 months of age he has not acquired the habit of controlling the passage of urine. The condition of his skin may be the result of irritation of a sensitive skin from continued contact with urine. This condition is sometimes called ammoniacal dermatitis. A good way to clear this up if the child wears diapers is to give them special care. They should be rinsed repeatedly in plain water, dried, then rinsed in a saturated solution of boric acid and then dried again without further rinsing in plain water. Long and frequent exposure of the child's irritated skin to the air, thus avoiding irritation from clothing, is helpful in getting the skin in a healthy condition. If this irritation involves the tissues around the opening through which the urine passes, this area should be kept covered with white petroleum jelly.

However, the symptoms described may be due to various serious conditions. The most common are malformations of the spinal column and spinal cord, and some malformation or obstruction in the urinary tract. There might be an obstruction anywhere from the kidney down through the bladder up to the external opening. Without an examination of the child, no opinion can be given. The wisest course is to ask the physician to examine the baby and, if necessary, have consultation with one who has special experience in the technics of examining the urinary tract of children.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

"Punch-Drunk"

To the Editor:—What is meant by a fighter becoming "punch-drunk?" What causes this?

A. S., Ohio.

Answer.—"Punch-drunk" is a descriptive term applied to a state in which an individual shows periods of confusion and definite mental enfeeblement as a result of repeated brain concussions of greater or less severity. This condition is most frequently found among pugilists whose vocation necessitates exposure to such injury.

Actual brain damage, consisting of minute hemorrhages and subsequent scarring, accounts for the symptoms of headaches, dizziness, fatigability, irritability, poor memory and inability to concentrate. In the well established case there may be and frequently is an unsteadiness of gait, slow hesitant speech, tremors and even frank muscular incoordination.

The term is particularly apt in that it indicates the "punch" as the causative force and implies the "drunk" effects which are similar to those of intoxication, including accompanying evidences of poor judgment and lack of moral responsibility.

Plastic Surgery for Outstanding Ears

To the Editor:—Can outstanding ears be set back or laid closer to the head by some method of operation, and do ethical surgeons undertake such an operation?

H. H. C., Ohio.

Answer.—Prominent ears may be made to lie closer to the skull by plastic surgery, and this is a frequent surgical procedure. It is done by competent and ethical surgeons of the highest standing. Unfortunately the field of plastic surgery has attracted the attention of borderline ethical practitioners, since some of the work such as this is of a very simple nature; but it is proper for the public to understand that reputable doctors do undertake and accomplish such work. The procedure can be done under local anesthesia, is not an extensive or a dangerous undertaking and should accomplish a certain amount of improvement in the appearance of the individual.

Any well trained surgeon should be able to do this. Surgeons who call themselves plastic surgeons confine themselves to this field. They are more numerous, perhaps, in the field dealing either with the congenital defects of children or with the essential reparative surgery which necessarily follows disfiguring but necessary surgical operations of great magnitude for tumors in older people. Such surgeons may from their experience do a better job in the reconstruction of this deformity, but at the same time it is clear that any trained surgeon can and should be willing to do this.

Receding Gums

To the Editor:—For the past three years the gums around my teeth have been receding. My gums are not inflamed, and my dentist recommends nothing but brushing my teeth well. My mother's gums have receded, and now there is a slight inflammation around several of her teeth. Is my trouble a forerunner of this condition? What are the causes of receding gums and the cure?

C. S., California.

Answer.—The causes of receding gums are numerous and varied. Only by clinical study of individual cases can the causes be ascertained. A frequent cause of gum recession and tooth sensitiveness is the injudicious use of the toothbrush, particularly with a highly abrasive dentifrice. This often occurs in cases wherein the toothbrush technic includes a horizontal movement of the brush over the teeth and gums. A competent dentist will demonstrate the proper use of the toothbrush, prescribe a safe bland dentifrice, one approved by the American Dental Association Council on Dental Therapeutics, and ascertain possible causes of dental ailments.

It is possible that the inquirer's mother suffers with diseased gums. One might infer that she suffers from a chronic periodontitis, or pyorrhea, of limited proportions. Such cases can usually be successfully treated by a competent dentist. Self medication, such as the use of "a good antiseptic," is of no value and may be injurious.

Venereal Disease

To the Editor:—After a venereal disease has been treated and cured, is there a chance for transmission to children in the next generation or future generations?

N. Z., Texas.

Answer.—No venereal disease except syphilis may be transmitted from parent to offspring. Syphilis may be transmitted from the mother to the child for one generation. The transmission of syphilis past the second generation from a single infection, if it occurs at all, is so rare as to be without practical significance.

According to present knowledge, syphilis is ordinarily transmitted from parent to offspring only if the mother is infected. Transfer of the disease from father to child may take place indirectly through infection of the mother who, in turn, infects the child. Consequently, an adult male, whether he has contracted the disease at birth or after reaching adult life, will never be directly responsible for infection of the offspring.

A woman who has acquired syphilis, on the other hand, unless she receives antisyphilitic treatment during her pregnancy, will always run some risk of infecting her unborn child, regardless of the duration of her infection, whether her blood serum tests for syphilis are positive or negative, and no matter how much previous antisyphilitic treatment she may have received.

It is true that a woman who has received sufficient treatment for syphilis to be called "clinically cured" and whose blood test for syphilis is negative, runs much less risk of giving birth to a syphilitic child than a woman who has had no treatment and whose blood test is positive; but unless she receives some treatment during her pregnancy, she can never feel certain that her child will not be diseased.

The cases in which a woman who acquired syphilis prenatally has passed the disease on to her child, so-called third generation syphilis, are so rare that most experienced physicians have never seen such a case, and they are, accordingly, of no practical importance.

Finger Nails

To the Editor:—What is the cause of finger and toe nails growing in thickness instead of in length? They grow in ridges crosswise like a cow's horn.

E. T. M., New Jersey.

Answer.—Specialists in skin diseases are familiar with this type of finger nail overgrowth. It is due to a disarrangement of the growing cells at the roots and on the plates of the nail beds. This can be caused by chronic systemic disease or skin diseases; it sometimes follows injury or it may be inherited. Treatment depends on the cause. Drugs which dissolve nails should be used with caution and only under a physician's observation.

Exercise

To the Editor:—What exercise or sport is the best body builder?

A. S., Ohio.

Answer.—The kind of exercise or sport which is the best body builder is the kind which the individual enjoys most. If possible, several sports should be on the program, provided there is no overdoing of any of them.

There is more to sports than mere body building. Sports should also build mind and character and contribute to general happiness and well being. Some will choose football, some swimming, some tennis, some hiking, some skiing and some skating. Sensible persons choose several sports according to the season.

It is also wise to choose at least one sport which can be continued beyond youth, such as swimming, tennis, golf or, what is not ordinarily considered a sport, namely, gardening. As the body grows older, the more strenuous sports cannot be continued. Baseball, football and other team games are not always convenient; but hiking, swimming, boating or gardening can always be indulged in as the opportunity offers without expensive equipment and at hours which fit into the business schedule.

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THE STORY OF HUMAN ENERGIES (Continued from page 241)

If you don't get refreshing sleep—which millions do not—no night is long enough for recovery. The best you can do is to get all you can in the morning, for you are then in the most relaxed condition for sleeping, and to make it up by as many naps during the day as you can. There is absolutely no virtue in early rising. The rule of Poor Richard's Almanac that "Early to bed and early to rise, makes a man healthy, wealthy and wise" makes better rhyme than sense. According to Charles Lamb, the common trait of early risers is their conceit which, Mark Twain noted, is exceeded only by that of passengers whose stomachs behave at sea. The Germans also have it in rhyme: *"Die Morgenstunde hat Gold im Munde"* (the morning hours bring golden showers), which for many might more truly read, "The morning hour is drab and sour."

Sleep habits, resting habits and working habits are all part of the individual pattern of the energy cycle, and that is part of your constitution, which is like a goodly number of other constitutions and unlike many others. For some an alarm clock secures a deeper and more unconcerned sleep; others it arouses from unfinished slumbers. The first may use it freely, the second never.

Poor sleep is not merely a deficit; it is a faulty pattern, or if you like, a peculiarity of your sleeping mechanism, possibly made worse by habit indulgence, as everything can be. More and more, physicians are coming to emphasize the individuality of our physical reactions, even in the most fundamental mechanisms. There are blood types and varying rates of clotting. Immunities are racial and individual; where millions are exposed to contagion, many or most escape. One man's food is another's poison, so far as some eminently suitable foods—it may be eggs or berries—act as poisons on the peculiarly disposed. One person, despite sparse diet, takes on weight, and another eats as much and what he likes yet remains thin.

Our nervous systems are equally individualized, but again according to types; otherwise there could be no rules, treatments, diets or remedies for the great masses of the normal. Advice on sleep and sleeplessness differs widely; the suggestions go wrong for lack of considering the varieties and patterns as well as the need of sleep.

All this is confirmed by the observation that men of unusual energies are also men with remarkable powers of rapid and complete recovery; moreover, they command sleep almost at will. This was true of Napoleon, the little corporal who upset the map of Europe. I knew three men of the same exceptional pattern, two of them university presidents. Dr. William Pepper, who was provost of the University of Pennsylvania and a professor in the medical school, conducted a private practice and engaged in all the public activities of Philadelphia. He did at least three men's work and never seemed tired. After advising patients all morning, he stepped into his carriage and slept until he reached the university, ready to lecture or attend a trustee's meeting. Former President Harper of the University of Chicago conducted an equally strenuous program; but with an interval of fifteen minutes between engagements he had fifteen minutes of sound sleep. On his summer vacations he slept fourteen hours a day. The other in the trio was a wholesale produce merchant. For half the year he was at the New York wharves at 4 a. m. Then he bought and sold carloads of produce by telegram at his office until evening, and with a few hours sleep he was alert for the next day. The rest of his inexhaustible energy went into collecting books on magic and exposing fraudulent mediums. His speech, his movements, his decisions were all high-powered.

Sir Francis Galton in his study of English men of genius said that he could assemble a good football eleven from the great men of his acquaintance; they were for the most part vital, vigorous human beings. To accept as the type of the scholar the cadaverous, large headed, horn goggled, absentminded person is a myth of the stage and the cartoonist. Unquestionably that type exists. Such persons take to study because they are less fit for physically more strenuous pursuits, like Kant; or there may be a touch of invalidism as in Darwin. While the law of compensation applies, the general correlation of high energy and achievement stands.

Sleep is the most imperative condition of recovery, which has its three R's: relaxation, recreation, rest. Relaxing is "letting go." There are several varieties of it which can be found set down in a wise book by Dr. Edmund Jacobson, entitled, "You Must Relax." You can relax or be at poise as you work. There's much wasted energy and leakage in clutching or gripping instead of just holding the pen, brush or other tool; there is also a false direction of energy in sitting too tense, in speaking with overcharged muscles and getting excited over trifles. There is much recovery in relaxation; even the strenuous rowers in an eight-oared shell attain their speed by utilizing to the full the recovery between strokes. The gospel of relaxation is always in season in a land where conveyor-belt efficiency is apt to be overdone in disregard of the ways of human energy.

Recreation is recuperating through spontaneous, pleasurable occupation, including change of employment and the offset of mind work and muscle work. Studiousness and athletics do not present opposition, except in extremes. Gladstone found his recreation in chopping wood, and an intellectualist woodchopper might find his in reading Gladstone. A physician worn out by seeing patients all day recreated at evening by tracing obscure references in Shakespeare—his hobby, of which he never tired.

But there comes a time when the best or the only way of recovery is by rest, when relaxation is not enough and recreation is too much! The technic of the mental hygiene of the energy cycle develops on rightly apportioning the three R's of energy, in knowing when to relax, when to recreate and when to rest.

Energizing is output; recovery is income. You may spend freely if assured of prompt reimbursement. The energy budget, though flexible, should be balanced as you go, balanced within the day, balanced mainly by the long rest-sleep, balanced weekly by the extra Sunday morning indulgence, balanced seasonally by holidays and vacations.

To continue working with partially rested muscles or nervous system invites disaster. Experiment shows this to be true. When a muscle has been worked so strenuously that it takes a two hour rest to make so good a record again, that muscle, if put back on the job after only one hour of rest, will not do half as much work but only a fourth as much or less. If it takes what we will call 1 degree of recovery to offset 1 degree of fatigue—which fatigue is moderate and normal—it will take not 2 degrees of recovery but 4 to recover from a fatigue of degree 2, and 9 times as long to recover from degree 3 of fatigue. These figures are not exact; but they indicate that for each increasing stage of fatigue beyond the normal, the periods of recovery mount by squares at least—1, 4 and 9. Not merely a stitch in time but a rest in time saves the nine. This explains the years of incapacity found in extreme cases of nervous breakdown. The moral reads: When you are run down,

take two weeks' holiday at once; it will do as much good as four months later when you are more run down. In either case, when you start resting, expect that there will be a further decline before the upturn comes. Convalescence from fatigue requires a gradual building up of new capital.

Nor does this tell quite the whole story. Just as there is a definite point at which water freezes and another at which it boils, there seem to be critical stages at which normal fatigue calls for second wind, if we have any reserve energies at all; but there comes a point in the decline at which the slowing of output and increase of effort turn suddenly into a refusal, an incapacity of the brain cells to carry on at all.

These are but some of the many factors that go into the making of a rational and hygienic program of the employment of human energies. There is particularly the environment.

Noise is a wearing depleter of energy. Antinoise campaigns for the streets deserve the heartiest support of the protectors of human energies. Indoor noises are even more devastating. An office can hardly have nor does it need the quiet of an operating room; but to require clerks and executives to concentrate in a room with a hundred typewriters going and a constant traffic of goings and comings is a misfortune for every one and an ordeal for the nervous. The floor of the stock exchange defies every psychologic principle.

Among the environmental conditions inimical to energy is heat. Excessive heat prostrates, makes every effort painful; combined with humidity, it is devastating. For the privileged, air conditioning has come to the rescue of sweltering summers. Here, as ever, individuals vary; some can and others cannot "stand" the heat. Ellsworth Huntington supports the proposition that great civilizations are limited to temperate climates. The human nervous system will not function efficiently in high temperatures; men in the tropics must adopt a lowered energy program with long midday siestas. Both energies and morals decline; inertia rules. Arctic climates demand all the energies just to keep life going in the struggle against cold; extremes are bad. Such are some of the many conditions governing the favorable output of human energies.

Of all the stimulants of human energies the one most simply stated is most consequential: You work best when you work with zest. The emotional man must be called on to arouse and sustain human energies. Zest is the greatest energy tapper: Faith, hope, love, reward and necessity spur energies by the stimulating emotional route. And equally consuming emotions work the other way: Failure, disappointment, the what's-the-use attitude all depress energies. In brief, you must care enough about your work to find a "kick" in it. If you don't care, life has lost its zest, which is precisely what happens in that abnormal state of low energy, neurasthenia.

Zest is of all levels; rewards and punishments are of all grades. Professor Thorndike has shown definitely by a variety of experiments that rewards work far better than punishments. So far as arousing energies goes, the whip is the most unpsychologic instrument ever devised. It expresses the presence of tyranny and the absence of intelligence. Yet the two instruments, rewards and punishments, have their place and move upward with the emotional level; they then become prides and shames. It is questionable whether a dunce cap ever stirred brain cells any more than a rule applied to the knuckles or other parts of the anatomy. The prides are constructive, the more so as they are self imposed—the will to conquer, the ambition to get on. Little successes encourage bigger ones. Eventually the successfully energetic man or woman is the one who supplies his or her own stimulation through a well ordered system of personal goals.

When, in the familiar story, Willie is much too tired to bring in logs for the stove but has abundant energy to join the gang on a lark, Willie's psychology is correct. So is that of the tired shop-girl who cannot do another stroke of work but dances gaily far into the night. Pleasure is a tonic; but the laws of energy remain, and overstimulation is costly. We may expend as much energy in play as in work; but the pattern of expenditure varies, and varies most by the constant presence of interests, joys, "kicks" in the stimulating occupation and their absence in the dull one. Play situations have been devised to meet the psychologic needs of variety, which is the spice of life. Work situations governed by necessity may, perhaps must, ignore them. They cannot do so wholly without reducing work to monotony or slavery—so many dozen pieces to be put through the machine, hundreds of nuts to be tightened on bolts on the conveyor belt, just to finish a day's work and get a day's wage. Monotony does not affect all alike. We differ widely in the stimulations we demand to keep going, differ also in responding to the call of duty to offset the tedium and unpleasantness of drudgery and chores. Doing one's bit is a moral stimulation. It remains true that we work best when we work with zest.

What zest does for the emotional man, interest does for the intellectual man. They converge in hobbies. A hobby is something pursued for the zest of it, something cared for more than it is intrinsically worth; hence it must not be too grossly useful. The collecting hobbies fit the formula well. A canceled postage stamp has no value beyond the zest value of those who care intensely to possess it. The collector collects for the love of it. He is in the best sense an amateur—a lover. If we all did our work in the play spirit—as young children's work must be arranged to fit their psychology—the world would be a happier place. Professor Palmer, philosopher at Harvard, recorded that he had such joy in teaching youth that he would gladly have paid the university for the privilege instead of drawing a salary for it. He was intensely happy in his work; when that attitude becomes general, Utopia will be just around the corner.

The practical problem of energy is to incorporate principles into a program. The general laws of energy, fatigue and rest hold for all; and we have to live in and with the customs of our time and kind. So far as anatomy goes, men wear about the same clothing; yet they select and order, if possible, cuts and styles to fit their individual needs and preferences. Every phase of the energy cycle—energizing, fatigue and recovery—requires an individual, temperamental adjustment. How far shall one yield to one's temperamental tendencies, how far fit them into a frame of energy demanded by the industrial world? All habits are compromises between nature and necessity. Working by the clock is more convenient, especially for large organizations, than working by the nervous system; but working according to physical and mental condition is the wiser way.

In all work, however high grade or inspired, there is an element of drudgery; and steady working habits with a judicious amount of pressure self administered are indispensable even to the most temperamental of workers. People who delay, awaiting the favorable mood under the impression that they are wooing the muses, are generally indulging their own caprices. We may insist that a disciplined set of habits is a necessary kit of tools for all efficient workers, even as we deplore overregimentation as the blight of high and happy endeavor. The amazingly most efficient thing that the nervous system does is to make a little energy go a long way; it goes farthest in results when expended in accord with the individual's temperamental pattern. It is then that he lives his own life.

FIGURE SKATING (Continued from page 249)

even movement of lines of hundreds of uniformed legs? Do you remember the overwhelming effect of that scene in "Green Pastures" in which the Children of Israel, to the accompaniment of a Negro spiritual, simply swayed the upper parts of their bodies back and forth, back and forth, in a crescendo of rhythmic power? We have heard of the effect on savage warriors of the inexorable, continuous beating of the war drums. We have felt something of the same effect in the rhythmic background of Ravel's "Bolero." Unquestionably a feeling for rhythm is a part of the warp and woof of most human structure. And rhythm is part of the very essence of skating. It is difficult to conceive of it without rhythm. From the point of view of the spectator this element of skating provides a thrill and for the skater much more of a thrill.

If the skating is done to good music, a slow waltz or a spirited march, there is a lift to it which must be experienced to be understood. The birds can soar a bit higher and a bit faster, but they don't fly to music, unless it is that of the stars or their own songs.

All this might be interpreted to mean that the writer considers skating to music as fine a form of physical exercise as is known to man, and such an interpretation wouldn't miss the truth by the breadth of a hair. And yet—the writer, being somewhat ashamed of such attempted flights with words and birds, begs now to be permitted to descend to a practical consideration of figure skating.

This is not intended to be an expert treatise or an adequate instruction chart but merely to give a notion of the possibilities of this sport to those who are not familiar with it, in the hope that real experts may not find too much to criticize unfavorably if they chance to read it. Let it be repeated that a middle aged man who is physically fit can learn figure skating well enough to get great enjoyment out of it for most of the remaining years allotted to him. In this, as in most sports, it would be well if he could have the aid of an experienced instructor, and unless all signs fail, such instructors will be available in more and more cities in the next few years. In the absence of such professional help a friendly amateur can do much.

In speed skating straight strokes are desired on the theory that a straight line is the shortest distance between two points. In figure skating all strokes are curved, and consequently skates with curved blades (once called rockers) are used since the long, straight blades of speed skates do not permit a stroke with much curve. It goes without saying that shoes should fit well and be large enough to leave room for heavy socks.

There are but four fundamentals to all figure skating: the outer edge, the inner edge, the three turn and the rocker turn. This may seem ridiculously simple, like one finger exercises on the piano, but, like piano playing, it becomes more complicated later. For example, the edges can immediately be multiplied by four as the outer edge can be done on either foot and forward or backward. The turns are multiplied by eight since they can be started on either foot, either edge and either forward or backward.

All figure skating is done on the edges of the skates and not on the flat bottom except for the brief interval of change from one edge to the other. The thrust is made from the edge of the blade and not from the toe. The outer edge is the right-hand edge of the right skate and the left-hand edge of the left skate. The acute mind will deduce that the other edge of each skate is the inner. If a skater thrusts with his left skate, glides on his right and shifts his weight a little to the right of vertical he will make a curved tracing on the ice with the outer edge of his skate, provided that his ankle remains firm and does not flop over to the left. If, with the same thrust and on the same skate, he shifts his weight to the left of the vertical he will make a line curving in the opposite direction with the inner edge of the skate. The weight always inclines toward the concave side of the arc.

Fig. 1

In designating edges we use R. and L. to indicate the foot, I. and O. for the edge and F. and B. for the direction of movement. Thus R. I. B. does not mean what you think, but right, inner, backward. In figure 1, *A* represents the curve made on a skate, the arrow indicating the direction of the movement. This is marked R. O. F. It could equally well be L. I. F., R. I. B. or L. O. B. The inner edge forward is probably the easiest one on which to begin, the outer edge forward coming next in difficulty, followed by the outer edge backward and finally the inner backward.

A turn may be defined as an evolution involving a change in direction from forward to backward or vice versa. The easiest turn and the one used most often is the three turn in which there is a change of direction and also a change of edge. In figure 1 *B* the start is made by an outer edge forward on the right foot. This changes to an inner edge backward at the turn. The same diagram might equally well illustrate a three turn starting on L. I. F., L. O. B. or R. I. B. Although it is beyond the scope of this article to attempt to give instructions as to how the different figures are executed it may be useful to remark that in turns and changes of edge on skates the head and shoulders lead, and the rest of the body, including the free leg, follows. For example, in the three turn illustrated, the outer edge forward should be taken with the left shoulder back and the left foot behind the right and inside, the circumference of the arc being made by the right skate. If, now, the head and shoulders are turned clockwise the left, or free, foot follows, and the skater can scarcely keep from making the turn.

The rocker turns, illustrated in figure 1 *C* and *D*, are much more difficult and involve a change in direction but not a change of edge. In *C* the change is from outer edge forward to outer edge backward. The figure might also illustrate the turn from R. I. B. to R. I. F., L. O. B. to L. O. F., or L. I. F. to L. I. B. *D* also illustrates a change from R. O. F. to R. O. B., but in this case the body turns counter-clockwise, whereas in *C* the body turns clockwise. Sometimes these turns have been called rocker and counter-rocker for purposes of distinction.

If a person aspires to competitive figure skating he should learn these turns on both feet, forward and backward and on either edge.

To the mathematically minded it becomes evident that, with resources including four different edges with each foot, four different three turns with each foot, four rockers and four counter-rockers with each foot, a considerable number of combinations can be worked out by the ingenious skater. I shall indicate a few such combinations; but first I shall speak of two or three somewhat elementary modifications.

Figure 2 *A* represents what is called a loop, for obvious reasons. This one is done entirely on the right outer edge forward. There is no change of edge; there is no change of direction. The only change is a marked reduction in the radius of curvature which is achieved by a vigorous forward swing of the left leg and perhaps a bit more leaning toward the center of the arc.

In figure 2 *B* appears what is really a pair of three turns but with the inner edge so short that it is nearly a straight stroke. The only name that I have heard for this was "panhandle," probably a colloquial name but one which we might use for want of a better.

The "Anvil" is shown in figure 2 *C*. It will be noted that this is not very different from the panhandle. However it is executed entirely on the outer edge, so that it really consists of a forward outer edge, a rocker turn, a backward outer edge (a straight stroke in this case), a rocker turn and another outer edge forward, so skated that the two forward edges make lines which cross each other. The first rocker turn is approached a good deal as though a three turn were to be made. The free leg is then swung vigorously forward and immediately backward, and this has the effect of drawing the right foot and skate straight backward and immediately forward. It is almost as though a loop had been made, the latter half of which is displaced by the sudden leg movement. This is the only figure I know that contains a straight stroke.

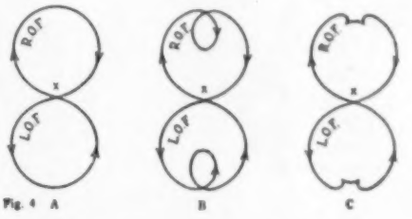
An important element in this art is the change of edge, being just what the phrase indicates, a change from the outer edge to inner or vice versa without lifting the skate from the ice and without change of direction, illustrated in figure 3 *A*.

Not only does the change of edge increase enormously the possible variations of figures, but it serves to keep up or increase momentum. A repeated change of edge such as is shown is sometimes called a serpentine, and it can be continued without touching the free foot to the ice as long as the muscles will stand it. The motive force is the to-and-fro swinging of the free leg, and the physical principle is presumably that of the resolution of forces. In the diagram the motion of the free leg is indicated by the broken line and that of the body and the skate which is on the ice by the solid line. If we regard the thing as though it were a map, the free leg swings north and south, but the skate on the ice travels northeast and southeast like a sailboat beating into the wind. As the free leg swings to the north it tends to take the body, right foot and all, with it, but the resistance of the skate edge on the ice makes this impossible, and a compromise is effected by which the skate goes to the northeast. The skate serves the same purpose as the keel or centerboard of a boat. For the nonskater to understand the diagram and description entirely, it may be helpful to note that the toe of the right skate points to the right side of the skater's body rather than straight ahead. His body travels sidewise more than forward.

Figure 3 *B* shows the bracket turn which provides a means of changing direction and edge. We did not list it among the turns because, as a glance at the drawing will show, the figure executed by the skate on the ice is a three turn, in this case from R. I. F. to R. O. B. The actual turn made by the skate is immediately preceded by a brief change of edge from R. O. F. to R. I. F. and is immediately succeeded by another quick change of edge from R. O. B. to R. I. B. Disregarding the short edges just before and after the turn the skater has changed from a long R. O. F. to a long R. I. B. just as he would have done in a three turn, although his body rotates the opposite way. In such a three turn the body would rotate clockwise; in the bracket illustrated the body turns counter-clockwise.

With the addition of the change of edge and bracket turn, the figure skater's armamentarium, as the doctor would say, or his bag of tricks in terms of magic, is complete. All that he has to do now is to put them together in compatible combinations and adequate doses.

Most competitive figures are skated in the form of eights. Of these the simplest is diagrammed in figure 4 *A* and consists of a complete circle on one edge on one foot, followed by a similar circle on the corresponding edge with the other foot. In the figure the start may be regarded as being made at *X* on the R. O. F. When the circle is completed a change is made to L. O. F. for the other half of the eight. The same figure may be made forward on inner edges or backward, using either edge of alternating feet. The eight on inner edges, backward, is difficult because of the awkwardness of securing the necessary thrust. In reality this must be done by a quick and short outer edge immediately followed by an inner edge with the thrusting skate.



Such eights, using both feet, may be varied by putting in loops as in figure 4 *B*, panhandles as in figure 4 *C* or anvils. They may be made much more difficult by executing the entire eight on one foot. In figure 4 *A*, for example, the figure may be started in the same way as before, and when the first circle is finished a change may be made to R. I. F. for the second circle, and this may be made continuous by changing again to R. O. F. and repeating the figure. The change from inner edge to outer in such a figure is not easy if the skater is to retain enough momentum to make his second outer edge circle as large as the first. In competitive skating a participant is required to make the figure three times successively, and the second and third tracings are supposed to be perfectly superimposed on the first for the ideal performance. It is astonishing how accurately a skater like young Robin Lee, our national champion, can do this.

Naturally the addition of loops or anvils to the circles requires a great deal of skill and practice if they are made on one foot only.

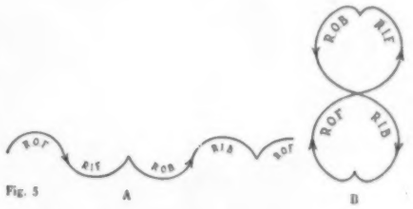


Figure 5 depicts a simple but rather satisfactory combination of changes of edge and three turns. In *A* the edges are held for something like 120 degrees only, so that progress is made down the rink if the figure is repeated a number of times. In *B* the same elements are used in the same sequence, but the edges are held for 180 degrees each, bringing the figure into the form of a single-foot eight with three turns. The only real difficulty here is the change from R. I. B. to R. O. F.

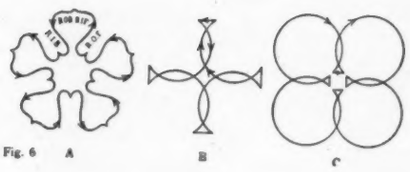


Fig. 6

Figure 6 presents three combinations which are interesting and not extremely difficult—at least the elements contained in them are not very difficult, although it is something of a problem to place them so that you finish exactly where you started. *A* is composed of change of edge, bracket turn, change of edge and three turn, all of which you have learned to do in your chair at least. *B* is formed by putting together four anvils in the shape of a Maltese cross. *C* is constructed of the same four anvils so placed that the straight strokes form a square in the center. These figures, like the rest, may be started on either edge, forward or backward; but the Maltese cross is easiest on the outer edge either forward or backward.

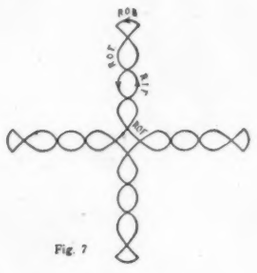


Fig. 7

Next is a variation on the Maltese cross theme (fig. 7). This should be clear from the drawing, but instead of the straight stroke of the anvil, the backward stroke is a real outer edge and curved.

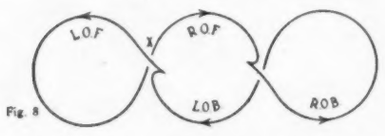


Fig. 8

Often the eights contain more than two circles, and figure 8 shows an example, one of the figures used in the national championship competition at Chicago in 1937.

This consists of a semicircle on R. O. F., a rocker turn and a complete circle R. O. B.; then a change of feet and a semicircle on L. O. B., a rocker turn and a complete circle on L. O. F., not so easy, especially as the competitive figures receive higher grades if they are on the grand scale with large circles.

Fancy or exhibition skating, the kind which we see on the stage and at ice carnivals, utilizes the elements of figure skating and adds to them such dramatic things as breath-taking whirls, spins and pirouettes together with assorted jumps. These things are worked together into routines which involve speed of execution and sweep and distance. The best of it is so good that you ought not to miss it when opportunity knocks at your door. This kind of skating is usually done with music but often not *to* music, if you know what I mean and, as Beatrice Lillie comments, I think you do.

Use the elements of figure skating to give yourself a good time, not necessarily doing everything on all edges and in both directions, but combining things so as to get the swing and rhythm and exhilaration of the thing, skating by yourself, with a partner or in a group of four—and to music when possible.

For example, consider the outer edge backward skated with a cross, making what has been called the "cross roll" or "Dutch roll," and meaning simply that you do a long, smooth, delicious outer edge backward on the right foot and then cross the left foot behind the right before putting it down for a delicious, smooth, long outer edge on the left foot. And thus you continue as long as the spirit moves. If there is waltz music let one edge last through two measures, and let the vagaries of the stock market and the need of new paint on the house recede into the nebulous fringe of the subconscious or beyond while you live vividly in the present. If there should be a woman skater in the vicinity, either blonde or brunette, you might join forces and hands with her, face to face, and let her do the cross roll forward while you do it backward. Here is real surcease of sorrow. Even a man partner will do surprisingly well.

If you feel so inclined you may do the figure shown in figure 5 *A* but on both feet together, thus making the simple "Grapevine" which we have attempted to pictorialize in figure 9, where the figure made by the right skate is shown by the solid line and that of the left by the broken line. It starts with R. I. F. and L. O. F., the right foot passing in front of the left and coming out again for the turn. After the first turn the right foot crosses behind the left and out again for the turn from backward to forward. The left foot takes an inner edge while the right one takes the outer and the right foot leads. The grapevine may be skated by two persons together, facing each other, one leading with the right foot and the other with the left.

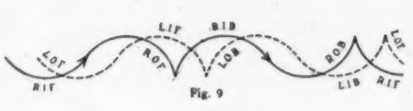


Fig. 9

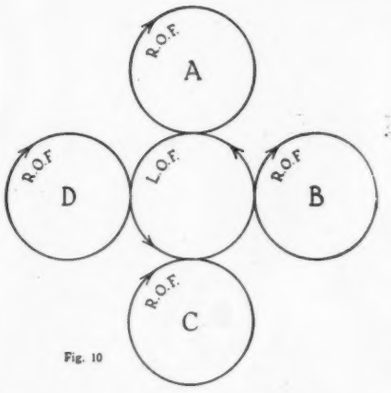


Fig. 10

Four people may do the simple eight together as shown in figure 10. To start they stand at the four points of the compass (or at any four equidistant points) with their left sides toward each other and the left hands of opposite partners clasping each other. Simultaneously they do an L. O. F. circle and separate to do their right foot circles independently, returning to the center to repeat. The procedure can be varied so that a change of scenery is secured by making but three quarters of a circle in the center each time. It can be made more difficult by putting loops or anvils or panhandles in the outer circles. Of course two persons can do a corresponding figure, making but three circles. Unfortunately neither this nor the grapevine is particularly adapted to musical accompaniment.

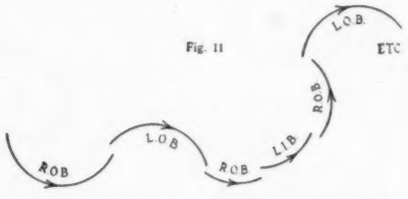
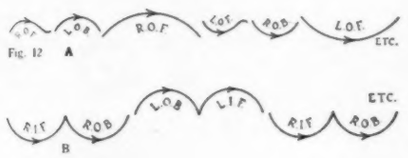


Fig. 11

If you feel full of animal spirits and crave to cover considerable territory and attain some speed and the waltz music fills the circumambient atmosphere, again resume relations with your partner and inveigle her into skating outer edges forward while you do them backward, and vary the procedure as represented in figure 11. For you it will be R. O. B.. for two measures (six beats), L. O. B. for two measures, R. O. B., L. I. B. (crossing the left foot behind the right as if turning a corner), one measure each, R. O. B. two measures; then the same thing repeated but leading with L. O. B. This routine gives a wide sweep across the ice and back and is satisfactory rhythmically, as many evolutions are not (for example the waltz, as I have usually seen it done), because most waltzes and marches such as are used for skating purposes are made

up of four or eight measure phrases, and the figure outlined consumes eight measures. Therefore the repetition with the left skate leading begins on the accented beat of a new phrase. Hum the famous "Merry Widow" waltz to yourself, if you will, and count the measures. You will find that the first phrase is eight measures long as is the second phrase. If this figure is skated to common or four-four time like that of the Maine "Stein Song," the long strokes will occupy one measure each (four beats) and the short ones a half measure each. Your skating will be a bit faster and more "peppy," but it will be equally acceptable rhythmically since the figure will occupy four measures, which is the unit in this composition. When you wish to turn at the end of the rink, make four short strokes instead of two, and it will bring you around.



Another combination of strokes which is adapted to skating to music is a standard one called the "Mohawk," illustrated in figure 12 *A*. It consists of R. O. F., finishing with a change of edge and a short R. I. F. for smoothness; then L. O. B., which is started by turning the body counter-clockwise and crossing the left foot behind the right; next R. O. F. is followed by L. O. F., the body having turned clockwise, and the stroke finishes with a short L. I. F., R. O. B., the body turning slightly clockwise and the right foot crossing behind the left to start the stroke. Finally L. O. F., and then begin over again with R. O. F. The figure is more interesting if the third and sixth strokes are made twice as long as the others and 180 degrees in curvature. In waltz time, strokes one and two will be of one measure duration each and three of two measures, and the whole six strokes will consume eight measures. This figure is enjoyable if skated by two or more persons side by side in a line. It is necessary to let go of hands at the beginning of each long stroke and take hold again facing in the opposite direction at the end of each long stroke.

Another simple and pleasant combination which can be skated to music is shown in figure 12 *B*. The figure is probably self explanatory. Start on R. I. F. and make a three turn, cross the left foot behind the right for the L. O. B., make a three turn, which brings you out on L. I. F. Start over with R. I. F. and continue.

The name "Mercury" used to be given to a figure for two persons facing each other and holding hands. Doubtless this name is out of date, but I venture to include a variant of it, even though the name may not be a good one, because it affords as delightful and uplifting a sensation as I know of in skating.

In figure 13 the man's part is represented by solid lines and the woman's by broken lines, and for clearness the two are put side by side instead of where they belong. It should be understood that the woman starts out skating backward directly in front of the man. She skates L. O. B., R. O. B. (rather short) then L. O. F. (with a half turn counter-clockwise), change of edge to L. I. F., three turn, and she is back where she started on L. O. B.

In the meantime the man starts on R. O. F., changes edge, makes a three turn (as he passes the woman), does an R. O. B., then L. O. B. (turning half way around clockwise) and starts over with R. O. F. At *X* the man passes the woman and turns backward; at *Y* she passes the man and turns backward. It will be noted that each does exactly the same figure, but he leads with the right foot and she with the left. As each comes around on the inner edge for the three turn the other pulls a bit to aid the sweep of the turn, and it is at this point that the peculiar lift of the maneuver occurs. In fact there is enough lift so that the active and ambitious may jump from the inner edge forward to the outer backward instead of making the three turn. If done to music each edge occupies a measure, and the music must be slow if it is in waltz rhythm.

In figure 14 *A* I have attempted to represent the waltz strokes; the solid lines stand for the man's part and the broken ones for the woman's. The two stand in the accepted dance position which has been hallowed by time, and it may help to skate a few outer edges, the woman backward and the man forward, to get into the swing of the music before starting the actual figure in which the woman skates R. O. B. for two measures of music while the man is doing L. O. F., one measure, three turn, and L. I. B., one measure. At *X* the man passes the woman and begins traveling backward while the woman, still on R. O. B., turns her body counter-clockwise with him so that she does a sort of "spread eagle" (turning the toes outward so that they are in line with the heels together) to enter on her L. O. F. She then does the same thing which the man did previously while he takes R. O. B. At *Y* she passes him, and they are in the starting position. This time, however, both take plain, outer edges, he L. O. F. and she R. O. B. for two measures, following which the waltz figure is done again, but with the right foot leading.

In performing this waltz it is desirable to have all edges rather "flat," that is without much curve. Sometimes it is done with five musical beats to the man's first L. O. F. and but one beat on the L. I. B., which follows the three turn. There is no objection to this if you like it better, but it is not quite as smooth or as satisfactory rhythmically, since the three turn and the beginning of the L. I. B. come on an unaccented beat. Naturally the woman will give the man no advantage and, if he skates it with five beats on his first edge, she will use five beats on her corresponding edge.

It will be seen that the completion of one skating phrase, so to speak, uses but six measures of music, and it is reasonable to suggest that the waltz be skated as diagrammed in figure 14 *B* with the introduction of two outer edges, each one measure long, before the two measure outer edges which immediately precede the repetition of the outer edge and three turn. If the description of this modification is not clear, the figure should make it so, and it will be seen that this modification gives a skating phrase which occupies eight measures of music, and the esthetic soul is satisfied.

The experienced instructor can suggest many more figures and many more combinations to be skated in pairs or fours. Remember that smoothness and absence of effort will contribute largely to your enjoyment and appearance in skating. It is hoped that these remarks on skating have not seemed overenthusiastic and that they may cause some one to like winter better, even at the expense of Florida's or California's income.

EATING WITH THE ESKIMOS (Continued from page 245)

In many parts of Eskimo Land, famine and starvation are regular visitors. Then one may find the Eskimos subsisting on anything they can find. They have even been known to gnaw the bones of dead relatives. In our enlightened civilization it may seem incredible that human beings can exist under such deplorable circumstances, yet it is true regardless of any doubt the reader may have in his own mind. One needs to witness such things only once to have them fixed indelibly in one's memory.

The food supply of the Eskimos is to a great extent regulated by the witch-doctors and shamans. They are the ones that conjure the spirits and practice the mystic arts. They are the ones that manufacture tabus which their people must follow. For instance, Eskimo children are not allowed to eat the intestines of the seal, a favorite dish with the adults, because the boys will not grow up to be good hunters and the girls will not become good mothers. When seal meat is eaten the bones must be thrown into the ocean whence they came, else the spirits of the seals will be offended and starvation may ensue. During the salmon fishing season there is a tabu which permits them to take only enough fish for their current supply of food. To take more or to take enough that they might be dried against the coming winter would offend the fish spirits, and the salmon would not come the following year. With the advent of the seal hunting season it is customary for each hunter to paint the face of the first seal he catches. This is thought to appease the spirits of the seals and cause many more of them to come. The painting is accomplished by using the soot from the blubber lamp. Prior to a whale hunt a great dance and celebration must be held to propitiate the spirits of the whales and thereby make a good whale hunting season.

In connection with the tomcod diet of the Eskimos living around the mouth of the Kuskokwim River, I have observed during four successive years that a serious epidemic disease breaks out among them as a result of eating these fish raw and frozen. This sickness is confined largely to the children. In the months of March and April all other foods become scarce, almost to the point of famine. This is just before the spring seal hunting season. At this time the Eskimos must subsist on the frozen tomcods left over from the catch of the previous fall. The result is a serious infection which develops in the blood of the children. It makes itself visible in the form of large ulcers on the limbs. The gums and mouth tissues become badly swollen, and the teeth loosen. The patient loses vitality rapidly and soon becomes so weak that locomotion is impossible. I have witnessed school children staggering about and repeatedly falling down on the school ground as if they were intoxicated. The body odor, and especially the breath, is highly putrid. Taken in its early stage the disease responds readily to proper diet. The tomcods must of course be eliminated, and a diet of milk, bread, potatoes and rice must be established. Many deaths have resulted from this disease. The Eskimos were powerless to prevent or deal with it in any way, because they had no other food at this time and had not the means to procure any.

Early in my life among the Alaska Eskimos I received the first big surprise or shock of my close association with them. The incident took place in an Eskimo village on Bering Strait. A big storm was raging from the northwest. The tide and waves were carrying much marine life onto the beach. During the storm I observed many Eskimo children along the beach apparently having a great deal of fun. They seemed to be playing some sort of game. In order to satisfy my curiosity and desire for an intimate knowledge of their life customs and habits, I went to the beach to observe them more closely. Among the items of marine life that were being washed onto the beach were many marine lugworms. These worms were from 5 to 8 inches in length and from ½ to ¾ inch in diameter. The Eskimo children were vying with each other to see who could find the most lugworms. When a worm was found it was grasped by one end with the thumb and forefinger, held aloft with a shout of joy, and then the contents were squeezed out and the worm was eaten with much apparent relish. After watching this performance for some time, I returned to the village and sought out the medicine man and asked him whether the worms that the children were eating would not make them sick. He laughingly assured me that the children who ate the marine lugworms were immune from intestinal disorders for the rest of their lives!

How do the Eskimos know what is good for them and what is harmful in the way of foods? I have pondered this problem in my mind many times and eventually learned the answer from the lips of a wise old witch-doctor. Always when an Eskimo kills an animal for food he examines the contents of the animal's stomach. Whatever he finds the animal has eaten he knows he may eat without harm to himself. Doubtless he found the marine lugworms in the stomachs of the walruses he had killed and thereby knew that he could eat them. In this manner the Eskimo has learned to eat many things which the white man would not think of adding to his diet.

In the Yukon-Kuskokwim delta region of Alaska the Eskimos may be found subsisting entirely on needlefish and sticklebacks at certain seasons. In this section as in all Eskimo Land their diet is a seasonal one. In March and April these small fish, about the size of a sardine, constitute the chief food item for man and dogs. By means of large dip nets the needlefish are dipped from the rivers and sloughs in enormous quantities. It is not uncommon for one Eskimo family to take as many as 200 pounds at a single dipping. The fish are then stored on the above-ground cache, where they remain frozen until consumed. Needlefish are eaten raw. A quart of them is considered a good meal for one adult. They are placed in an individual wooden dish, and then a generous portion of seal oil is mixed with them, if the seal oil is available. Because of their peculiar structure, needlefish must be eaten head first. The dorsal fin of this fish is really not a fin. It is a row of sharp needle-like spines which lean toward the tail and prohibit them from being swallowed tail first. They are not chewed. They are allowed to slide down the throat, with the seal oil acting as a lubricant and food combined.

In the spring of the year, shortly after the ice has gone out of the rivers, the river dwelling Eskimos take to their canoes, and by means of large dip nets literally take tons of smelts from the river. They are piled in heaps on the bank of the river, where the women and children string them on willow withes and hang them on racks to dry in the sun and wind. After they are properly dried and at the same time are well blown by flies, they are ready to eat. Like the tomcod and needlefish they are eaten raw. When fresh and properly cooked, smelts are an excellent and appetizing dish. However, I would have to suffer extreme hunger

(Continued on page 278)

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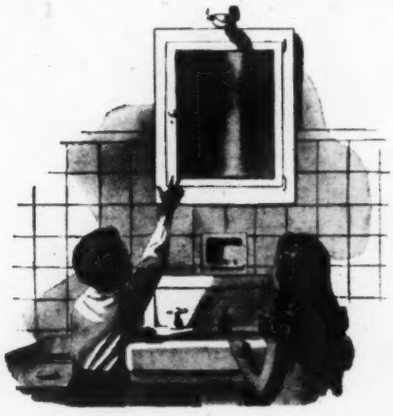
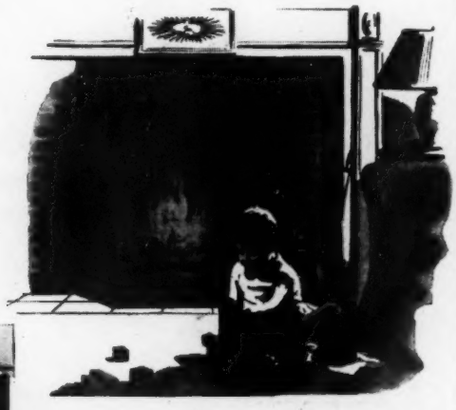


Have you a cabinet for poisons and medicines out of reach of the children —preferably locked? Bottles containing poison should be clearly marked.



Have you a fire screen to protect small children from burns and your home from flying sparks? Common among the many causes of fires are unclean or defective chimneys, badly worn electric cords, and oily rags not kept in metal containers.

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HEART MURMURS

(Continued from page 250)

ent occasions before a definite conclusion can be reached. *However, it is important that a conclusion be reached.* The entire future of the child depends on this. If an organic murmur is recognized early the child may be kept from more serious heart damage by receiving the proper care. If, on the other hand, he is permitted to exert himself as much as the normal child, heart failure and serious illness will surely develop. If the murmur is functional and is wrongly interpreted as being organic the unfortunate result is that a normal child may be treated as an invalid. Only too often have healthy children been kept in bed for weeks or months because of the presence of a heart murmur which did not mean anything. Sometimes it is difficult to convince people that there is nothing the matter with them when they do not have any organic disease; this is also true when it comes to convincing a mother that a heart murmur in her child is not organic. Often a psychologic problem is created by having the child think that he has a serious heart condition and that he is different from other children. It takes years to rehabilitate such children, and the whole thing could be prevented originally by proper interpretation of the heart murmur.

The following rules might be of value to parents in clearing up the question of heart murmurs:

1. All infants and children should have periodic physical examinations. In this manner the murmur will be detected at the earliest possible moment. Also, its progress can thus be followed regularly.

2. Do not become alarmed when you discover that your child has a heart murmur. Remember that most of these murmurs are functional.

3. Never permit the child to gather the impression that he has heart disease unless you are absolutely sure that this is so. If the murmur is organic and the child is old enough to take care of himself he should know about it and should be properly instructed in how to take care of himself.

4. If the murmur has definitely been diagnosed as functional no mention should be made of it to the child.

Epidemiological studies indicate that on the average every man, woman and child in the United States experiences about two and a half colds each year.—*Medicine.*

TUBERCULOSIS AND LITERARY GENIUS

(Continued from page 224)

Melville's "South Sea Idylls." Returning to the Pacific coast in 1888 he acquired a schooner and, lured by the heritage and the romance of his seafaring ancestors, set sail for southern waters. En route he visited Father Damien's leper colony at Molokai, shortly after the brave Belgian priest had died there of leprosy. Finally the noted author settled on a plantation in Samoa, to which he gave the name of Vailima, or Five Waters.

For three years he was happy and in relatively good health. Then illness came again, with death following on Dec. 3, 1894. He was buried on the peak of Mount Vaea, above his last home of life. "By order of the Samoan chiefs," Dr. Lewis J. Moorman has written, "the use of firearms was forever silenced on the hillside so that the song of birds might perennially blend with the music of his requiem and the far-away murmur of the Pacific."

The list of famous authors, dramatists, artists and musicians who suffered from tuberculosis is such a long one that the association of this disease with genius has to many persons seemed to be more than a mere coincidence. Among the English men of letters who were tuberculous one finds such illustrious names as Robert Burns, Keats, Shelley, Pope, Byron, Goldsmith, Kingsley, Leigh Hunt, Ruskin, Sterne and Francis Thompson.

Dr. Samuel Johnson was afflicted with a form of tuberculosis known as scrofula, manifested by lesions of the skin. The celebrated author of the "Dictionary" went twice to Queen Anne to receive the queen's touch, which was thought to be efficacious in curing this malady, although his biographer, Boswell, relates that the remedy proved ineffectual in Johnson's case. He lived, however, to be 75 years of age, dying in London in 1784.

The author of the incomparable "Ode to a Grecian Urn" and of so many other matchless verses died in Italy in 1821 at the age of 25. John Keats came of a tragic family, since his father was killed in an accident in 1804, and his mother, who had remarried when Keats was 10, succumbed to phthisis five years later. About this time, Keats was apprenticed to a surgeon and in five years had passed his final examination as a doctor. During the time of his medical studies, in 1817, Keats contracted syphilis but apparently was cured by vigorous applications of mercury.

In 1818, when Keats published his "Endymion," the poet first

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showed signs of the pulmonary disorder that ultimately caused his death. He lived for a time with Leigh Hunt, another victim of tuberculosis, but left in a moment of emotional upset. Later he fell in love with Fanny Brawne, to whom he dedicated some of his poems and who is thought to have been the inspiration of much of his notable verse.

Keats was buried in Rome near the grave of his friend, Percy Bysshe Shelley, whose career had been terminated by drowning in 1822 when he was about 30 years of age, although he was also a sufferer from tuberculosis. Shelley wrote many poems and also contributed extensively to the radical literature of the times. His first wife, whom he married when she was 16, committed suicide by drowning in 1816, and his two children were denied him by the law on the grounds that he was an atheist.

Another of the famous English literary figures who had tuberculosis was Elizabeth Barrett Browning. Born in 1806, she became an invalid in 1840 and was confined to her room at her father's house in Wimpole Street in London. Long an admirer of Robert Browning, she first met him in 1845, and they were married late in the following year. In improved health she accompanied her husband to Florence, Italy, in 1849, where a son was born. After a productive literary life, her health failed, and she died on June 29, 1861.

Dr. J. Arthur Myers has written an interesting little book entitled "Fighters of Fate," in which he describes the achievements of numerous celebrated persons who were tuberculous. In addition to Leigh Hunt, John Keats, Mrs. Browning, Thoreau, Artemus Ward, Lanier and Dr. Trudeau, who have already been mentioned, Dr. Myers includes such well known persons as Paganini, Schiller, St. Francis of Assisi, Chopin, Dostoievsky, Cecil John Rhodes, Aubrey Beardsley and, among others, the modern writers Harold Bell Wright, Will Irwin, Albert Edward Wiggam and Eugene O'Neil, and the baseball player Christy Mathewson.

Germany has contributed Goethe (1749-1832), Heine (1797-1856) and Schiller (1759-1805) to the list of notable victims of tuberculosis; France has presented Rousseau (1712-1778), Balzac (1799-1850), Molière (1622-1673) and Voltaire (1694-1778), and Russia has given Chekhov (1860-1904) and Gorky (1868-1936) as well as Dostoievsky (1821-1881). Among other American authors who had tuberculosis were Stephen Crane (1870-1900),

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Ring Lardner (1885-1933), N. P. Willis (1806-1867) and Edgar Allan Poe, who died of pneumonia in 1849 at the age of 40. His death was preceded by a long illness which was accentuated by the death of his child-wife and promoted by his own dissolute life.

In addition to the persons mentioned, Dr. L. J. Moorman has listed in his work on tuberculosis and genius the following among the victims of tuberculosis: Milton, Hood, Channing, Merimee, Descartes, Locke, Kant, Spinoza, Beaumont, De Quincey, Scott, Jane Austin, Hawthorne, Gibbon, Cardinal Manning, Marie Bashkirtseff, Southey, Westcott, de Guerin, David Gray, Amiel, John R. Green, Robert Pollok, Hannah More, James R. Randall, John A. Symonds, Katharine Mansfield and Paul Lawrence Dunbar. D. H. Lawrence, who died in 1930, was likewise afflicted with tuberculosis.

Molière benefited so little from the ministrations of the physicians of his period that he wrote several tirades against them. His plays, "L'Amour Médicin" (1665), "Médecin malgré lui" (1666) and "Le malade imaginaire" (1673) were satirical jibes at the doctors and at quackery and false pretensions to learning. Molière himself was acting as the hypochondriac invalid in "Le malade imaginaire" on Feb. 17, 1673, when he was seized with a fit of coughing, which was followed by a hemorrhage and his death half an hour later.

Voltaire, on the other hand, was a staunch friend of scientific medicine. In one of his essays he paid homage to the medical profession, saying, "Men who are occupied in the restoration of health to other men by the joint exertion of skill and humanity are above all the great of the earth," a statement that later had a counterpart in Robert Louis Stevenson's celebrated tribute to the physician. Although Voltaire suffered from tuberculosis at various times, he lived to 84 years.

The late Sir William Osler referred to tuberculosis as "the captain of the men of death." For many years it stood first in the mortality tables, but today it has dropped to seventh place, with a death rate from this cause only one-third the figure at the beginning of the present century. This gratifying reduction has probably been achieved by better and earlier diagnosis, by placement of persons with open cases in sanatoriums, by improvements in environmental conditions, by education and by an advance in the standards of living. Tuberculosis is still a serious problem, but fortunately it is not so great a menace as formerly.

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EATING WITH THE ESKIMOS (Continued from page 272)

before my stomach would take them à la Eskimo without rebellion.

By 1890 the white man had depleted the Eskimos' natural food supply to such an extent that something had to be done to prevent a condition of general starvation. Dr. Sheldon Jackson, then superintendent of Eskimo welfare in Alaska, fully realized the seriousness of this situation. It was he who conceived the idea of introducing reindeer into Alaska to replace the food supply which the white man had taken from the Eskimos. Up to this time, whaling vessels were going to the Arctic in great numbers. There they found an exceptionally rich field for their operations. Whale, walrus, seal and other animals were taken by the thousands.

In 1852 the destruction of the Eskimos' natural food sources reached its peak. In that year almost 500,000 barrels of whale oil, seal and walrus blubber and other products were taken. By 1890 this destruction had progressed to such an extent that the business fell below commercial possibilities, and at the same time the Eskimos' food supply was reduced to the starvation point. From Siberia and Lapland small herds of reindeer were transported to Alaska to form the nucleus of the great herds which now roam the tundras of the territory. Regardless of the rapid increase in the herds, the government Reindeer Service for the Eskimos of Alaska was destined to have a stormy growth. Unfortunately the ever aggressive white man was allowed to acquire many of the reindeer and later increased his holdings by poaching on the Eskimo-owned herds. This, in a measure, defeated the government's objective, and had it not been for the rapid increase of reindeer the project would have failed completely. Today the Eskimo-owned reindeer in Alaska number as many as 350,000. The reindeer of Alaska represent such an enormous potential meat supply that it is, even now, difficult for some greedy white men to refrain from exploiting them for personal gain. The reindeer represent the logical solution to the Eskimo's loss of his natural food supply but will require rigid governmental protection and supervision, if the Eskimos are to receive just and proper benefit from them.

Sanitation and hygiene in the Eskimo's home has a definite relation to his health and the quality of his diet. In the first place the primitive Eskimo has not the slightest idea of the meaning or value of cleanliness. He lives in the midst of extreme filth and is positively unhygienic about his person. It is remarkable indeed how he can live under such deplorable conditions and still be robust and healthy as long as he has plenty of his own kind of food. Cooking utensils are used again and again without the slightest pretense at cleaning them. Eventually they become so thickly encrusted with grease and grime that it becomes necessary to clean them in order to restore their original capacity. This is accomplished by the use of the Eskimo's own liquid bodily excretion, which has the same function in an Eskimo's home as the white man's soap has in his home. It is also important in the Eskimo bath because of its power over body and head lice. Often have I marveled at the absence of typhoid and other infectious diseases among primitive Eskimos, when I consider the terrible filth in which they live and their extremely unhygienic habits. Doubtless the constant low temperature of the Northland coupled with a remarkable immunity which they have acquired during their racial evolution has prevented them from dying off as a result of contagion. It is a remarkable experience indeed to visit a primitive Eskimo settlement and witness the healthy robust children who know no ills, notwithstanding their filthy and unhygienic physical condition and the extremely insanitary conditions of their home life.

An educational program designed for the betterment of Eskimo life and the alleviation of their deplorable living conditions should be administered by one who is thoroughly familiar with the situation. The educational program of primary importance is that of health, sanitation and hygiene. These highly important precepts cannot be taught through regular classroom routine. Instruction and actual material help must be brought into the Eskimo's home. If the teacher would succeed, he must be sympathetic and must not accentuate race difference in the least. Even then there should be no effort to wean the Eskimo people away from their own special diet. But this does not bar any effort which might be made to teach them the proper care and preparation of their foods, the sanitation of their homes or the hygienic care of their bodies. The Eskimo's own foods are wholesome, and he is especially adapted to their use. But it stands to reason that he would derive much more benefit from them under conditions

of sanitation and hygiene. We need not destroy his culture in order to improve his living conditions. And we need not impose on him the white man's civilization to make his life a happier one. Let the Eskimo be an Eskimo. Allow him to eat Eskimo foods and live in an Eskimo innie, his underground dwelling. But for his own good, teach him the precepts of clean living. It will make of him a much better Eskimo and will avoid his otherwise inevitable extinction.

NEW YORK WORLD'S FAIR PLANS LARGE HEALTH EXHIBITS

A separate building has been assigned by the New York World's Fair of 1939 for presentation of the story of medicine and public health. This building will be in the heart of the exposition's exhibit area, on the northern side of the Theme Plaza. It will house "A World of Health."

This building will be divided into three main chambers of great size, to be known as "The Hall of Man," "The Hall of Medical Science" and "The Hall of Public Health."

The Hall of Man will present the normal human anatomy and, to a certain extent, its physiology. Here will be shown the digestive system, the dynamics of the circulatory system and other bodily activities, the functions of the glands, the mechanisms of the special senses, sex determination and the development of the human organism. Models of different parts of the body will be reproduced large in size and mobile in construction so their operation may be easily demonstrated.

In the Hall of Medical Science it is planned to show some of the more important complications which beset the human being, their causes, how they may be prevented or cured and the services available to this end. Among the sections in view for this chamber will be those devoted to cancer, tuberculosis, pneumonia, the common cold and other respiratory diseases, diphtheria, infantile paralysis, heart disease, diabetes, venereal diseases and infections.

Present plans for the Hall of Public Health include sections on maternal health, infant and child hygiene, heredity and eugenics, mental hygiene, industrial hygiene, safety and first aid, sewage disposal and water supply, intestinal diseases such as typhoid and dysentery, the control of communicable diseases, the relations of insects to disease, maritime quarantine, deafness, blindness and harmful superstitions.

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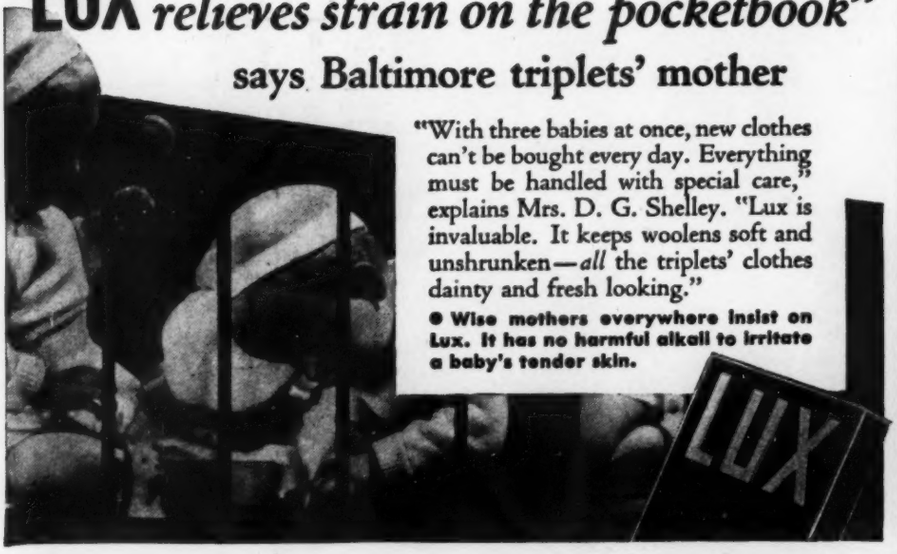

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SCHOOL and HEALTH

(Continued from page 257)

Many states have a central source from which schools can borrow posters, slides, exhibits and moving pictures. In New Jersey it is the New Jersey State Museum. In other states such information may be obtained from the state department of education. Some universities and state colleges have a similar service for the public school teacher. Various organizations and departments of the United States government are also interested in helping the teacher who wishes to present pictorially a health lesson, and these agencies maintain a free loan service for moving pictures. Generally the cost of postage is required.

Some of the sources which provide such a service are:

CHILDREN'S BUREAU, Department of Labor, Washington, D. C.: "Sun Babies" and "Well Born."

BUREAU OF MINES, U. S. Department of Interior, 4800 Forbes St., Pittsburgh: "Learn and Live" and "Carbon Monoxide."

U. S. PUBLIC HEALTH SERVICE, Treasury Department, Washington, D. C.

METROPOLITAN LIFE INSURANCE COMPANY, Madison Ave., New York: "Health Heroes," "Conquest of Disease" and "Food and Growth."

JOHN HANCOCK LIFE INSURANCE COMPANY, Boston: "Preventing Diphtheria" and "Garden of Childhood."

AMERICAN DENTAL ASSOCIATION, 212 E. Superior St., Chicago: "Life of a Healthy Child."

BORDEN MILK COMPANY, 110 Hudson St., New York.

RAY BELL FILMS, INC., 817-23 University Ave., St. Paul.

NATIONAL COUNCIL OF Y. M. C. A., 347 Madison Ave., New York.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, 1250 Sixth Ave., New York.

PINKNEY FILM SERVICE, 1028 Forbes St., Pittsburgh: "Life Saving."

If one is interested in renting or buying films there are many sources, among which the most outstanding are:

EASTMAN TEACHING FILMS, 343 State St., Rochester, N. Y.

EDITED PICTURES SYSTEM, 130 West 46th St., New York.

ERPI PICTURE CONSULTANTS, 250 West 57th St., New York.

BELL HOWELL COMPANY, Educational Division, 1801 Larchmont Ave., Chicago.

BRAY EYEGATE, Stanley Bowman Company, 2929 Broadway, New York

CARTER CINEMA PRODUCING CORPORATION, 551 Fifth Ave., New York.

These companies will send lists of available films on request.

It's good to have money and the things that money can buy; but it's good, too, to check up once in a while and make sure that you haven't lost the things that money can't buy.—*George Horace Lorimer.*

THE AMEBAS (Continued from page 248)

"Good idea, Son." He puffed at his pipe. "But, just how to keep these amebas out of our food and water—*that* is the thing!"

"How, Dad?"

"Well, take foods! They can only get these amebas from people that have 'em in their bowels. Maybe they're sick people, or maybe they're not. They may be carriers."

"Are there lots of these carriers around, Dad?"

"Oh, yes. Then sometimes the amebas may get into foods from raw vegetables grown with human wastes as fertilizer. But they say the irrigating of land with sewage has been stopped now in the United States. So *that* couldn't mean much in spreading amebic dysentery."

"Well, then, what does do it, Dad?"

Dr. Smithies disregarded the question and went on. "So foods must be mostly contaminated by these carriers, Son, by people that work in the big kitchens, like cooks, waiters, dish washers, helpers and the like."

"How do they?"

"Well, of course people have to be kind of careless about their personal habits to spread the amebas to the foods. But there is no doubt it's done lots of times that way."

"Are there other ways too, Dad?"

"Oh, yes. There's water; that's getting to be a real question lately."

"How do you mean, Dad?"

"Well, there's this outbreak in the big city which seems to be due partly to foods handled by carriers and partly to drinking water that got contaminated from a crumbly sewer system dripping into a water tank."

"The water they drank, you mean?" Sonny couldn't believe it.

"Yes, Son," he paused, "and this drinking water angle is something to think about, I guess!"

"Why?"

"You see, most cities treat their water with chlorine to make it safe from typhoid and the like, and it *is* safe that way. But this ameba! That's something different!"

"How do you mean?"

"Well, the ameba isn't killed by chlorine, Son. No amount they could possibly put in drinking water would ever be enough to kill the amebas."

"How much would it take?"

"Oh, a hundred times as much as to kill the other disease microbes in water, and if such a big dose were put in a public water supply, nobody could possibly drink it because of the strong taste and odor, and also because of the danger to health from such a strong chemical as chlorine."

"Then can't we keep these amebas out of our drinking water at all?"

"Oh, yes, we can by filtering the water."

"What does that do, Dad?"

"It takes out the dirt and solid particles in the water and also any of these amebas, with their cysts, or seeds, that might be there."

Sonny thought it over. Then: "Where does the water we drink here come from, Dad?"

"Oh, from a deep well, so there isn't a chance in the world that it will give us amebic dysentery. The danger is mostly to big cities that take their drinking water from lakes and rivers. All these bodies of water are apt to contain the amebas if they have any sewage in them at all, and therefore the water should be filtered before it's used as a water supply."

"Do any cities take their water from a lake or river without filtering it at all?"

"Yes, they do, Son, a good many of them, and they're running a chance too, if you ask me, of having this amebic dysentery!"

"Then every city ought to filter its water?" asked Sonny.

"Yes, by all means, all public water supplies taken from lakes and rivers should be filtered before being pumped into the mains."

"Well, Sonny, I'm glad we have a deep well for our windmill to pump from."

Sonny yawned. "But I'm getting awful sleepy. Is that all about the amebas, Dad?"

"Yes, that's all for tonight, Son."

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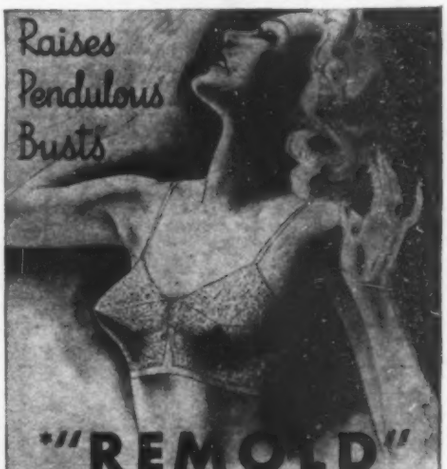

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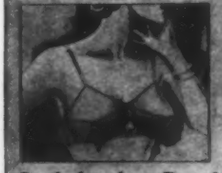

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Do You Know—

1. What percentage of the American people have sinus trouble? *See page 203.*
2. How speed records compare for running and ice skating? *See page 208.*
3. Into what two general classifications children's questions fall? *See page 215.*
4. What is the real meaning of the expression "punch-drunk" as applied to pugilism? *See page 264.*
5. What sort of a sound does the beat of your heart make when heard through a doctor's stethoscope? *See page 206.*
6. What is served in Eskimo Land under the names of *kamamuk* and *titmuck*? *See page 242.*
7. What differences there are between the quantity and quality of illumination that are considered proper for close critical work and for less exacting occupations? *See page 211.*
8. The names of eight world-famous authors who have died of tuberculosis? *See page 222.*
9. Precisely what effect amebas have when ingested into the human body? *See page 246.*
10. What is your daily iron requirement and how to meet it in the selection of food? *See page 255.*
11. How to compute your exact occupational energy expenditure in terms of calories per hour? *See page 238.*
12. What are the two substances now in use for the treatment of leprosy? *See page 228.*
13. How to make sukiyaki according to the real Japanese recipe? *See page 234.*
14. What effect does a passive parasitic existence tend to have on the organism? *See page 231.*

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TO AMERICA'S SCHOOLS—YOUR HEALTH!

(Continued from page 260)

usually attend to that quite sufficiently themselves.

6. An interesting chapter in the medical history of this country deals with the mysterious disease called milk sickness, occurring only rarely today. In pioneer days it caused a great loss of life. One author reported that some outbreaks caused the death of one fourth of the population, and frequently entire communities were abandoned because of fear of this plague. The disease is caused by richweed, or white snakeroot. It occurs throughout eastern United States as far west as Oklahoma and Nebraska. Chemical study of the plant reveals that three poisonous substances are present. Two of these have no relationship to milk sickness, but the third poison—an oily liquid—has the characteristics of a secondary alcohol. This substance produces "trembles" in animals and is responsible for milk sickness. The plant appears to be inedible to animals, and they usually do not eat it unless forced to do so by hunger. Outbreaks of milk sickness are most common in the late summer and early autumn, when the growth of the richweed is most luxuriant.

7. Tetanus, or lockjaw, is a disease which is transmitted from animals to man. The germs live in the intestines of horses, cows and other domestic animals. They enter the human body through injuries to the skin incurred under conditions which allow dirt to get into the wound. In barnyards and localities where manure has been used for fertilizing purposes the danger is greatest. Torn wounds or deep punctured wounds are worst, because the germ grows only where there is no oxygen; Fourth of July injuries are ideal for development of tetanus, being both torn and dirty. The germ in its growth produces a powerful poison which travels along the nerves to the brain. Lockjaw is easy to prevent, difficult to cure. Its prevention until a few years ago was based on use of a powerful antitoxin; now a toxoid for permanent immunity has been developed. (Review lesson on diphtheria for explanation of toxoid.)

8. Psittacosis, commonly known as parrot fever, gets its correct name from the genus of birds, the psittacine, which are primarily responsible for its spread. It is highly contagious, being spread by the droppings of the birds. Naturally, it affects mainly those who have bird stores or keep birds as pets or who handle them. It is now controlled by quarantine of imported birds until they are shown to be free from the disease.

9. Anthrax is usually contracted through the handling of hides, hair or the animals themselves. It is largely an industrial disease.

10. Bubonic plague is usually contracted from flea-bearing rats.

11. Glanders is a communicable disease of horses, mules and other animals and is readily communicable to man.

REFERENCES FOR TEACHERS

DISEASES TRANSMITTED FROM ANIMAL TO MAN by Thomas G. Hull. Price, $5.50. Springfield, Ill.: Charles C. Thomas, 1930.

SUGGESTED PROJECTS

Visit a veterinarian or an animal hospital, if there is one in your community, and see how animals are cared for. If possible, view some of the animals ill with any of the diseases discussed.

Inquire of your local health officer whether there are any cases in your community of diseases discussed.

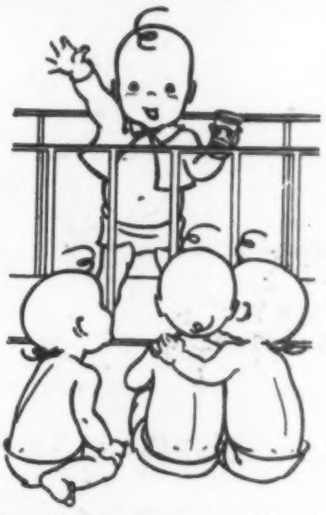
[NOTE.—HYGEIA will publish in this department each month similar briefs of programs to come during the succeeding month, with reading references and suggestions for things to do. Reprints of this section are available in bundles of twenty-five at 50 cents a bundle, postpaid, cash with order, for use in schools. Single copies, 5 cents. Address Order Department, American Medical Association, Chicago.

This department and the radio program are under the direction of Dr. W. W. Bauer, Associate Editor of HYGEIA and Director of the Bureau of Health and Public Instruction, American Medical Association. A workbook entitled "Your Health" has been prepared to accompany the programs. It is published by Johnson Publishing Company, Richmond, Va.]

This world is not so bad a world
As some would like to make it;
Though whether good or whether bad
Depends on how we take it.
—*N. W. Beck.*

How dull it is to pause, to make an end,
To rust unburnished, not to shine in use—
As tho' to breathe were life!
—*Tennyson.*

"*My frien's...* good news for us"



Beech-Nut now applies its famous care to strained foods

Food kitchens where walls are white enamelled and spotless, and the very air itself is fresh country air. Old, old Beech-Nut customs! Now they provide ten varieties of the purest strained foods.

Imagine! In sterilized glass jars

These tastier infant foods are cooked the Beech-Nut way with almost no loss of precious nutritious values—*fresh, in sterilized glass jars* and sold at popular prices.

Beech-Nut Packing Co., Canajoharie, N. Y.

Beech-Nut

STRAINED FOODS

Varieties: Peas, Apple Sauce, Green Beans, Beets, Prunes, Spinach, Apricots, Carrots, Vegetable Soup, Blended Cereal

WHEN APPETITE SAYS
"GO AHEAD"

AND DOCTOR SAYS
"GO EASY"

HERE'S A HAPPY
SUGGESTION

Whether it's a matter of preventing weight increase, or of guarding a delicate or impaired digestion —BOVRIL is an ideal dietary item. . . . It is appetite-satisfying, yet low in weight-inducing calories. And it is also "kind" to the stomach. Its food constituents are easily assimilated and gently invigorating. A splendid beef-beverage for children, grown-ups, "slimmers," invalids, convalescents, elderly folks—everybody!

20 to 30 pounds of prime, lean beef are required to produce one pound of the extract used in making BOVRIL concentrate. At food and drug stores, by the jar for home and sickroom use. At fountains and lunch counters, by the hot cup—10c.

BOVRIL OF AMERICA, INC., CAMDEN, N. J.

"BEVERAGE BEEFSTEAK"

BOVRIL

ALSO BOVRIL BEEF BOUILLON CUBES

LEPROSY (Continued from page 230)

the lesson that is to be drawn from the life of his successor, Brother Joseph Dutton, who lived at Molokai for many years without contracting leprosy. He died eventually of old age, thus proving that close contact did not necessarily mean contraction of the disease. The humble, unspectacular life of Brother Dutton gained little recognition for this lesson, compared to what might have come from its association with the more striking figure of Father Damien.

The Mission to Lepers was founded in 1874 by a Scotchman, Wellesley C. Bailey, and together with its American branch, the American Mission to Lepers, has done work for the relief of lepers throughout the world. In Portuguese East Africa, for example, lepers might still be persecuted wanderers but for its work. Instead they now live in a camp that was once a coffee plantation and are able to earn their own living, possessing such domestic animals as goats, pigs and chickens and raising corn and peanuts to supplement the food from coco-palms and fruit trees. They are also given the best cure known. Fifteen years ago there was not a leper hospital or clinic in all Africa, where the percentage of leprosy was perhaps the highest in the world, being 13 to 100. Four years ago treatment stations had been established in every country from Egypt to South Africa and from Liberia to Ethiopia, most of them being aided by the American Mission to Lepers. The Kingdom of Siam, where the society gave a pioneer demonstration of leper relief, has one of the most attractive colonies in the world at Chiengmai. Small white cottages with little flower and vegetable gardens line the main street, and a fireplace is provided where inhabitants can cook their own simple meals. At the colony in Soonchun in Korea some years ago a prize was given for the best kept grounds about the houses of the lepers, and the place was beautiful with its flowering plants and shells. The colony was overcrowded, and there were always those outside the barbed-wire fence who pleaded for admission.

Of the millions of lepers in the world today, scarcely 50,000 were under treatment a few years ago, and authorities were turning to dispensary care in cases that could not be cared for in hospitals. Such work was carried on successfully at the American leprosy station at Taiku in Korea, where, because lepers were ostracized, the clinics were known as "skin clinics." This station, which is maintained by the American Mission to Lepers, aided by the Japanese government, is under the supervision of a missionary of the American Presbyterian Church.

Leprosy is not inherited. In "Unsolved Problems of Leprosy," Prof. Frederick P. Gay expressed the belief that too little attempt had been made to ascertain the possibility of eliminating it by immediate segregation after birth. Hasseltine in Honolulu had, he said, found only one case of leprosy over a period of fifteen years in 219 children removed from leper parents at birth. The course should be followed up, and if the implications were confirmed, the most important pathway to eradication of the disease would seem to be opened up.

For treatment the old Indian drug, chaulmoogra oil, which has been known almost as long as the disease itself, is most effective. It has been used in various forms and administered in various ways. Its nauseating properties stood in the way of its use until intramuscular injections were tried. These, however, were so painful that few patients were willing to submit to them, and in 1916 and 1917 the injection of soluble sodium salts of the fatty acids of the oil was tried both intramuscularly and intravenously with extensive destruction of the leprosy bacilli and eventually complete disappearance of the organisms in not too advanced cases. Later ethyl esters were substituted for the sodium salts and given intramuscularly. This treatment brought about the discharge as recovered of 53 per cent of 399 patients admitted at Honolulu in four years, so that hope was held out that in twenty-five years the leprosy problem there might be solved. More recently the oil has been refined, and its active principle has been isolated for use. In India a new substance, sodium hydrocarpate, was adopted by Dr. Muir as part of the routine treatment and has been found cheap, easy to administer and effective. So the British Empire Leprosy Relief Association has distributed large quantities of the drug and has been supplying hydrocarpus seeds for cultivation.

At the great Culion colony in the Philippines a large percentage of its 7,000 patients attain a cure. In ten years, 2,500 were sent home as free from leprosy. This good progress is being made in many countries, and now that it is becoming known that something can really be done in the way of cure,

Everyone loves MILK
when it's made into Rennet-Custards

Tempting, delicious — actually more digestible than milk itself

Make rennet-custards with either:

"JUNKET" RENNET POWDER—Already sweetened and flavored for making an endless variety of rennet-custards. Made in a minute—just add to LUKEWARM milk. No eggs, no baking, no boiling. Six tempting flavors:

Vanilla Chocolate Lemon
Orange Raspberry Maple

"JUNKET" RENNET TABLETS—Not sweetened or flavored—add sugar and flavor to taste. More economical for making rennet-custards, easily digested milk foods for infants and invalids. Also for making smoother ice cream with less cream in hand freezers.

FREE Recipe Book
—dozens of new desserts and ice creams. Mail postcard to "THE 'JUNKET' FOLKS," Chr. Hansen's Laboratory, Inc., Dept. 333, Little Falls, N. Y.

THIS TOMATO JUICE IS NEVER THIN OR WATERY

Always drink Kemp's Sun-Rayed—the pure, undiluted juice of WHOLE tomatoes. Delicious. The Sun-Rayed Co., Frankfort, Indiana.

TWELVE YEARS IS A LONG TIME TO SIT in an incorrect position. But many school children do suffer this hardship for at least a portion of their school life. Do you know that the American Seating Company has studied this problem in a thoroughly scientific manner, and is glad to hear from all parents and teachers who are interested in correct hygienic school seating. You will be intrigued to learn the various advantages of the seat, pictured in the advertisement, page 277.

JUST WHAT WILL BE THE OUTCOME OF that interesting tete-a-tete between Mr. Gilter and Mrs. Agile in the Postum advertisement on page 288, nobody knows. But maybe Mr. Gilter has an idea that you or some member of your family could adopt to good advantage. At least it is worth investigation.

YOU PROBABLY HAVE A DEFINITE IDEA of the temperature in your home or office. The thermometer is so common that we take it for

(Continued on next page)

those in the early, amenable stage are coming forward for the first time and asking for treatment, which is a promising sign, since it is important that new cases be found early. The trouble has always been to hunt them out.

Frequently under treatment such patients recover before the infective stage is reached. Moreover, the life of the leper today is being made more comfortable, and the old asylums are being replaced with agricultural colonies. Hospital clinics are also being established for outpatient treatment in early uninfectious cases, thus reducing the cost of treatment and avoiding the unhappy separation of the patient from family and friends.

A new problem is developing, however, for the horror and repulsion felt for lepers for thousands of years cannot be overcome in a year or two. Society still fears and shuns the cured leper, and some means must be found of restoring him to a normal, happy life. In the Philippines the attempt to rehabilitate the cured lepers has taken the form of a settlement on the Island of Culion, which is another section of the same island that houses the active lepers. Here they can make their home and earn their living, chiefly in agricultural pursuits.

How the disease spreads is the great problem that awaits solution. To solve it much research work is needed, and a number of bacteriologists have recently gone to leper colonies to live.

It was in 1925 that the Leonard Wood Memorial for the Eradication of Leprosy (now known internationally as the American Leprosy Foundation) was founded in memory of Leonard Wood, at one time governor-general of the Philippines. The memorial carries on medical research on a worldwide basis and maintains the medical work at Culion, the world's largest leprosarium. Here at last perhaps the mystery of this centuries old disease will be cleared away, and the leper will cease to be an outcast.

RAILWAY BIBLIOGRAPHY PUBLISHED

"Railway Literature for Young People" is a bibliography of 150 books, booklets and periodicals recently published in answer to the demand for suitable literature on railroads and railway travel for boys and girls. The lists are classified for primary, intermediate and high school grades. The bibliography includes references to railway transportation subjects, past and present. Requests should be addressed to the Association of American Railroads, Washington, D. C.

TOO PRECIOUS FOR GUESS WORK!

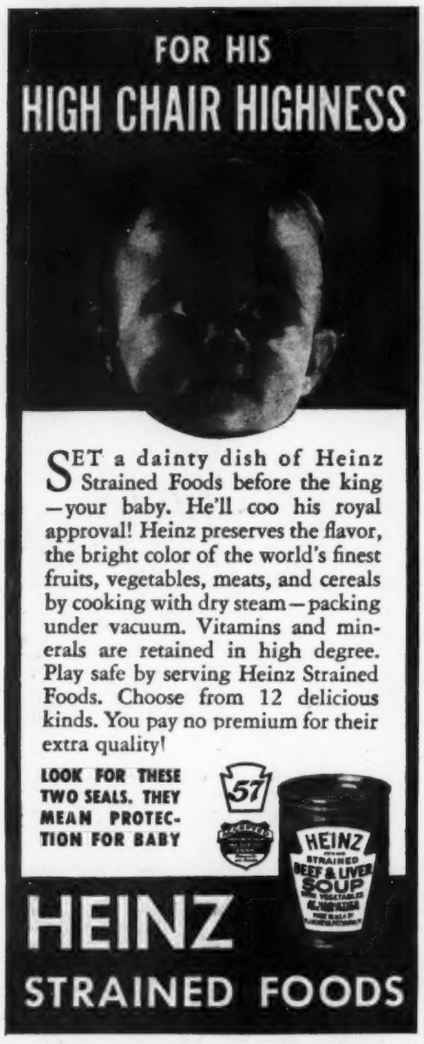
Not all strained foods are the same

When Doctor says it's time to put baby on strained foods, the wise mother thinks at once of Gerber's—buys Gerber's—sticks to Gerber's. Because absolute uniformity—regularity—in the daily feeding of baby is vastly important to his health.

Gerber's Strained Foods are *uniform.* Gerber pioneered in research on strained foods; Gerber maintains a laboratory where constant control is exercised over every process; where constant scientific research goes on in the matter of infant feeding. Gerber-fed babies profit from the latest scientific knowledge... And Gerber vegetables are *Home Grown,* picked and packed at the moment of optimum ripeness and goodness. No loss of quality due to transportation and storage. Actually, at the doors of Gerber's shining kitchens, the farms begin! Is it any wonder that more mothers buy Gerber's?

PEAS . . . BEETS . . . CEREAL . . . GREEN BEANS
VEGETABLE SOUP . . . TOMATOES . . . SPINACH
PRUNES . . . CARROTS . . . APRICOT & APPLE SAUCE
LIVER SOUP WITH VEGETABLES

GERBER PRODUCTS CO., FREMONT, MICH.
(In Canada, Gerber's are grown and packed by Fine Foods of Canada, Ltd., Tecumseh, Ont.)


FOR HIS
HIGH CHAIR HIGHNESS
SET a dainty dish of Heinz Strained Foods before the king—your baby. He'll coo his royal approval! Heinz preserves the flavor, the bright color of the world's finest fruits, vegetables, meats, and cereals by cooking with dry steam—packing under vacuum. Vitamins and minerals are retained in high degree. Play safe by serving Heinz Strained Foods. Choose from 12 delicious kinds. You pay no premium for their extra quality!
LOOK FOR THESE TWO SEALS. THEY MEAN PROTECTION FOR BABY
57
HEINZ
STRAINED BEEF & LIVER SOUP
HEINZ
STRAINED FOODS

SPEAKING OF ADVERTISEMENTS

(Continued from page 285)

granted. Moreover, we soon express our feelings in a very definite way if the temperature varies a few degrees from the normal. But you would be amazed to know the extreme variation in the amount of light with which people read and work. Now, thanks to the Light Meter, the amount of light in your home, office or school can be measured in much the same way as the thermometer records the temperature. See General Electric advertisement, page 275.

HAVE YOU TRIED BOVRIL, THE BEEF beverage? You will like it, particularly on those occasions when your appetite calls for something that is not cloying, and yet satisfies. Moreover, Bovril will not add excess pounds of weight. It is obtainable for home use at food and drug stores. Further details, on page 284.

SCHOOLING FOR THE INVALID CHILD, particularly if suffering from heart trouble, asthma, diabetes, or nephritis, is made pleasant and effective at La Loma Feliz, featured on page 276. The head master will be glad to correspond with you.

THE DISTINCTIVE FLAVOR OF BEECH-NUT Bacon, Peanut Butter, etc., may be familiar to you. Do you know that Beech-Nut now prepare a full line of strained foods for babies—all cooked and prepared in that fine Beech-Nut manner? See advertisement on page 283.

QUESTIONS and ANSWERS

(Continued from page 265)

Mental Disturbances

To the Editor:—Are the majority of psychologists and psychiatrists in general agreement on the question of libido? One neurologist defines it as follows: "The mental aspect of sexual hunger is called libido. The anxiety neuroses are due to insufficient and incomplete exercise of sexual functions." I suffer from a form of neurosis, variously termed mental depression, psychoneurosis, neurosis and anxiety neurosis, and naturally am concerned about the way out of my trouble.

E. F. W., Massachusetts.

Answer.—There is today no general agreement as to the concept of libido among psychiatrists. Libido is primarily a freudian concept. It is used by the adherents of freudian psychoanalysis and in nonfreudian analytical groups. It has been found useful by psychiatrists who are not followers of Freud but who accept certain freudian tenets. It must be said that among psychoanalytically oriented groups the concept of libido differs to some extent, its sexual connotation being emphasized more by some, less by others.

Whatever the definition and meaning of libido may be is essentially of theoretical interest. It cannot be doubted that the impulse life of the individual, whether or not it is called libido, plays a paramount rôle in his life. No individual in our culture, or in any other culture for that matter, is in a position to give his impulse life free rein. He has to check and to control it in accordance with the rules and regulations as imposed on him by the society in which he lives. It is inevitable, then, that situations occur in which the individual's impulses are frustrated. Such frustration can lead, and as a rule does lead, to conflicts and to experiences of anxiety.

Anxiety is found at the root of many nervous or neurotic manifestations. Frustration of the sex impulse can lead to such neurotic manifestations. The degree, form and content of these neurotic manifestations depend on numerous factors within and without the individual. There is no reason to assume that every person who chooses to remain continent would suffer from "mental disturbances." It is, however, a matter of fact that total frustration of the sex life would be instrumental in bringing about neurotic developments in many persons.

The inquirer should not attempt to make his own diagnosis or to treat himself from books or correspondence but should see a competent psychiatrist, who will advise him.

Removal of Superfluous Hair by Diathermy

To the Editor:—During a vacation in England I began having epilation by diathermy. I have found the results more satisfactory than earlier treatment by electrolysis. Can you advise me whether it is practiced by any one you can recommend?

R. J. D., Massachusetts.

Answer.—The removal of superfluous hair with the high frequency current has been practiced in Germany and to some extent in other countries during the past few years. Attempts have been made to make the method popular in the United States, but as yet these attempts have not been successful. A little of this work is being done; but one outstanding dermatologist has carefully studied the results, and they are not encouraging.

Better work can be done with electrolysis if performed with adequate skill than by using the high frequency current. Patients have often preferred the high frequency current because they have not had skilled electrolytic work done. Therefore they have not been able to compare skilled electrolytic work with work done by high frequency currents. When comparing the two methods, properly performed, it has been found that with the high frequency current there is more scarring, more discomfort and a larger percentage of hairs recurring than with electrolysis. The same number of hairs can be removed per hour with either method if properly performed. The high frequency method is still in the experimental stage, and until it has become perfected and surpasses or even equals properly performed electrolysis, it cannot be recommended in preference to electrolysis.

Eyes: Absence of Iris

To the Editor:—My maternal grandfather had fair eyesight, but the irises were missing. His wife, my grandmother, had normal eyesight. In his three children, my mother, aunt and uncle, the irises were either missing in part or entirely absent. A son of my aunt, an only child, and one of the two children of my uncle also suffer from absence of the iris. My sister and one

brother are afflicted with the same congenital absence, and another brother and I are free from this defect. In the event of my marrying a woman whose eyes and sight are normal would there be any danger of our children suffering with this congenital weakness or absence, wholly or partly, of the irises? If so, what chance is there that this might happen? Would I be justified in marrying?

H. T. K., South Australia.

Answer.—Absence of the iris may be either complete or partial, but these differences merely represent different degrees of manifestation of a single inherited factor. Hence the conditions in this family history are not quite so complicated as they might appear. The inherited factor behaves as a dominant; that is if present at all, it makes its influence visible. One who does not show some defect of the iris does not possess or carry the inherited factor.

Since the inquirer is himself free from this defect, it is evident that he does not possess the factor for it and hence cannot pass it on to his offspring.

He should have an examination by a competent ophthalmologist to make certain that his irises are really perfect. If they are, he may marry a normal woman with the expectation that their children will be as normal as any one's children and that the defect will not appear in any future generation, unless it comes from some other source.

Aluminum Dentures

To the Editor:—Do aluminum dentures cause stomach disorders or any other ill effects?

R. V. C., New York.

Answer.—There is no evidence available that aluminum dentures would bring on stomach disorders or cause any marked ill effects.

The claims that aluminum dentures might produce harmful effects are reminiscent of the propaganda that has been directed against aluminum cooking utensils. That propaganda was directed, undoubtedly, by those who felt the competition of this newer metal for culinary purposes, and it was in part promoted by a dentist without any marked standing in the dental profession.

A number of experiments by capable investigators show that the amount of aluminum ingested into the food by cooking in aluminum vessels and also by the wearing of aluminum dentures is harmless.

It does

DOUBLE DUTY

in

MODERN HOMES

IN years gone by, housewives kept a package of Arm & Hammer or Cow Brand Baking Soda (they are identical) in the kitchen cabinet for cooking purposes.

Modern housewives have advanced in their use of our Baking Soda. They keep another package in their medicine cabinet—make it perform a double duty—because they know that it is also pure Bicarbonate of Soda. It is thus recognized by the Council on Pharmacy and Chemistry of the American Medical Association.

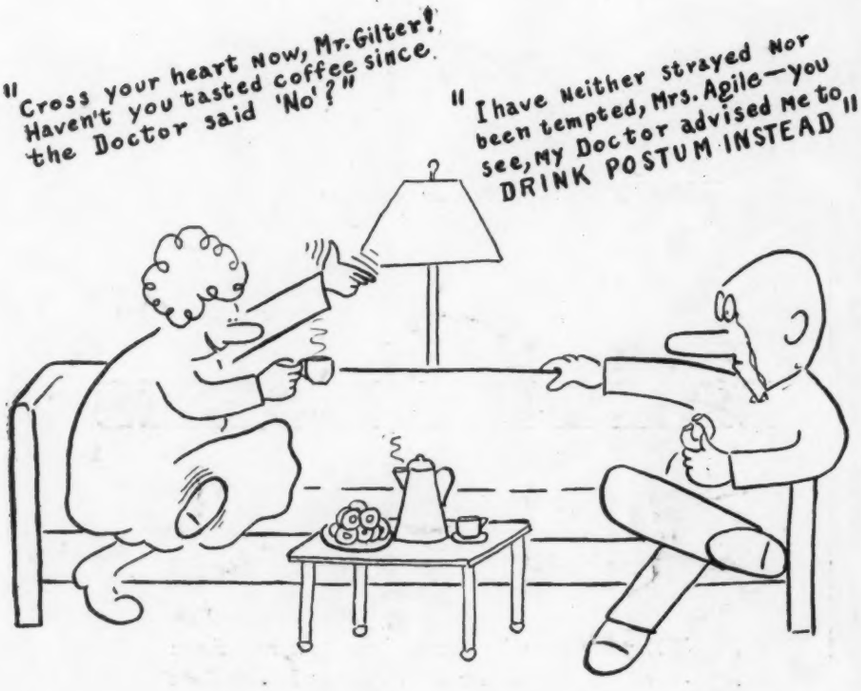
For instance, in the case of a superficial scald or burn, our Baking Soda can be used for first-aid treatment. Apply it as a paste, cover with a damp cloth and be sure to keep it moist. Also, when prescribed, it can bring relief from hyperacid types of indigestion—the usual dosage being a half teaspoonful in a glass of cool water.

Frequent analyses and our 91 years' experience in the production of Arm & Hammer and Cow Brand Baking Soda account for their uniform purity and dependability. Available in almost every grocery store for just a few cents a package.

Business Established in 1846

CHURCH & DWIGHT CO., Inc.

10 Cedar Street New York, N.Y.


"Cross your heart now, Mr. Gilter! Haven't you tasted coffee since the Doctor said 'No'?"
"I have neither strayed nor been tempted, Mrs. Agile—you see, My Doctor advised me to DRINK POSTUM INSTEAD"

IF YOUR DOCTOR TOLD you "Give up coffee!" the chances are you'd have a hard time following his advice!

For most people find it difficult to do without a hot drink at meal-time. (A good many don't have to, of course... they can drink coffee without ill effects. *We're talking about those with whom the caffein in coffee disagrees.*)

But if *you* are ever faced with this problem, perhaps your doctor will make it easy for you by telling you "Drink Postum instead!"

You'll find that Postum's delicious flavor—full-bodied and satisfying—its tempting aroma and steaming warmth make you forget all about forbidden beverages.

And—best of all—Postum contains no caffein. It is simply whole wheat and bran, roasted and slightly sweetened.

Postum comes in two forms, Postum Cereal, the kind you boil or percolate, and Instant Postum, made instantly in the cup. Either way, you will find it delicious, very easy to make and extremely economical (it costs only about ½¢ a cup). Postum is a product of General Foods.

FROM RAIN TO DRINKING WATER

All water that we drink was originally rain. Falling on the ground and washing the surface of the earth, it picks up many impurities. In coursing its way from the skies to the faucet the water may, and usually does, take on objectionable qualities of color, taste, odor, hardness and turbidity. Microscopic plant life and sometimes disease bacteria are carried along.

In comparatively few communities is the quality of the raw water such that it can be delivered to the taxpayers without extensive processing. When taken from a river or lake the water usually must be subjected to sedimentation, which clarifies it and removes some of the bacteria. In this process the water is allowed to stand for a period of time in shallow reservoirs or basins. Suspended clay or silt settles out.

When the water supply is drawn from a source containing considerable organic matter, as a lake or an impounding reservoir, it often must undergo a coagulating process. Alum is put into the water and a white, flaky, gelatinous substance is formed that coagulates the organic matter, causing it to settle to the bottom of the basin.

Until recent years the problem of safeguarding the palatability of water was the biggest one confronting waterworks superintendents. But now modern science has developed a remarkable substance, known as activitated carbon, which easily and effectively removes disagreeable tastes and odors in public water supplies, whether caused by algae, sewage, trade wastes, road washings or other pollution. The substance acts like a magnet in attracting and holding the minute quantities of odorous substances which disflavor the water. Activated carbon does not dissolve in the water. Its action is not chemical, but mechanical or physical.

When strongly objectionable tastes and odors develop in the public water supply they often exert an irritating effect on persons, as does noise. Another important effect is the tendency of unpalatable drinking water to drive persons to the use of other sources of supply which may often be impure.—*American Institute of Sanitation.*

"Education commences at the mother's knee, and every word spoken within the hearsay of little children tends toward the formation of character."—*Hosea Ballou.*